



# NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

## THESIS

**ECONOMIES OF SCALE: 9-1-1 CENTER CONSOLIDATION  
AS A MEANS TO STRENGTHEN THE HOMELAND  
SECURITY ENTERPRISE**

by

Trevor W. Womack, Sr.

March 2014

Thesis Advisor:  
Co-Advisor:

Fathali Moghaddam  
Kathleen Kiernan

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STRENGTHEN THE HOMELAND SECURITY ENTERPRISE**

Trevor W. Womack, Sr.  
Deputy Chief of Police, Stockton (CA) Police Department  
B.A., California State University, Stanislaus, 2009

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Author: Trevor W. Womack, Sr.

Approved by: Fathali Moghaddam, Ph.D., Georgetown University  
Thesis Advisor

Kathleen Kiernan, Ph.D., Contractor  
Co-Advisor

Mohammed Hafez, Ph.D.  
Chair, Department of National Security Affairs

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## ABSTRACT

Since the Great Recession, local governments have been under pressure to cut programs, personnel, and services due to decreased tax revenues and a weak economic recovery. As a result, government agencies, aiming to do more with less, have consolidated services, including those of local 9-1-1 dispatch centers.

This thesis explores whether 9-1-1 center consolidation has been successful thus far. Through a multiple case-study approach, the effects of consolidation upon cost efficiency, service levels, and organizational structure are examined. Primary data were gathered from semi-structured interviews with executives of three consolidated 9-1-1 centers. Secondary data were obtained from related budget documents, published reports, emergency call and response statistics, staffing rosters, organizational charts, and intergovernmental agreements. This mixture of qualitative and quantitative data was analyzed to identify individual first-order concepts, generalized into patterns, and synthesized into overarching dimensions.

The key findings suggest that

- the consolidation of 9-1-1 centers can result in increased cost efficiency through economies of scale;
- regionally, 9-1-1 center consolidation may standardize and raise the quality of service provided across disciplines and jurisdictions; and
- in the near-term, organizational behavior issues present challenges for the newly consolidated 9-1-1 center.

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## LIST OF ACRONYMS AND ABBREVIATIONS

BOEC	Portland's Bureau of Emergency Communications
BTS	Portland's Bureau of Technology Services
CAD	computer aided dispatch
CALEA	Commission on Accreditation for Law Enforcement Agencies
CCC911	Charleston County Consolidated 9-1-1
COG	Council of Governments
EC	emergency communications
EMD	emergency medical dispatch
EMS	emergency medical services
FY	fiscal year
GIS	geographic information system
IAED	International Academies of Emergency Dispatch
IGA	intergovernmental agreement
IT	information technology
JPA	Joint Powers Authority
MDC	mobile data computer
PSAP	Public Safety Answering Point
RMS	records management system
SCR911	Santa Cruz Regional 9-1-1
SOP	standard operating procedure

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## EXECUTIVE SUMMARY

The nation's link between citizens and public safety first-responders—police, fire, and emergency medical services—is the 9-1-1 emergency call system. Critical hubs of that network are the thousands of Public Safety Answering Points (PSAPs), or 9-1-1 centers, staffed by qualified emergency call-takers and public safety dispatchers. The personnel, facilities, and communications technology that combine to form an efficient and effective 9-1-1 center are what connect those in crisis with the necessary public safety response resources. Most local 9-1-1 centers are owned and operated by individual public safety agencies; however, some are amalgamated centers serving multiple jurisdictions so that costs are shared among the participating agencies.

Consolidation of 9-1-1 centers is not a new model for emergency communications, with some consolidated centers having been in operation for decades. However, the idea has gained increased interest as our nation's economy has struggled through the Great Recession. State and local budgets have been slashed to account for decreased tax revenues, resulting in cuts to programs, personnel, and services. Public safety agencies have not been immune; some have experienced dramatic cuts to police and fire staffing. The reduced capabilities for local agencies weaken the homeland security enterprise as a whole. It is imperative then, that government identifies ways to maintain and even enhance core services despite fewer resources. Consolidation of resources is one possible means to that end; and, more specifically, the consolidation of local 9-1-1 centers may enable agencies to better meet service demands through improved efficiency.

### **Purpose and Method of this Study**

Within this context raises the question, how successful has local 9-1-1 Center consolidation been so far? In search of the answer, three case studies of established consolidated 9-1-1 centers were conducted: Santa Cruz (CA)

Regional 9-1-1, Charleston County (SC) Consolidated 9-1-1, and Portland's (OR) Bureau of Emergency Communications. Primary data were collected through semi-structured interviews of the top executives of these amalgamated organizations. Secondary information was gathered from agency publications, statistical reports, budget documents, staffing rosters, and direct observation. Interviews were audio-recorded, fully transcribed, and closely reviewed. Collected data were then analyzed through an iterative process.

First, a chronological summation of facts within each of the categories was explored during individual interviews. These categories were general facts, budget and efficiency, service level, interoperability, governance, organizational behavior, politics, and other considerations. This revealed a number of "first-order concepts" specific to each case study. The identified first-order concepts were then evaluated for underlying themes and patterns across case studies, resulting in 15 general "second-order themes." Finally, second-order themes were generalized and synthesized further into broad "overarching dimensions." The overarching dimensions were used as a framework to present and discuss six key findings that emerged.

## **Findings**

The six key findings presented herein provide insight for this study's two areas of inquiry: 9-1-1 center consolidation's effect on (1) cost efficiency and service quality, and (2) its organizational strengths and weaknesses. Taken together, these findings help answer the primary research question. A summary of the findings follows:

- Interagency collaboration and resource sharing may be an important precursor to 9-1-1 center consolidation; and, the phenomena of 9-1-1 center consolidation itself may spawn additional collaboration and resource sharing.

Two case studies revealed some amount of pre-consolidation collaboration and resource sharing within the region had occurred. This was in the form of a shared public safety radio system and/or other shared technology

systems. Furthermore, all three case studies demonstrated additional interagency cooperation and resource sharing occurred after consolidation, in the form of new data-sharing technology projects and common policy development that was ancillary to the core 9-1-1 dispatch function. All the consolidated 9-1-1 centers improved communications interoperability to some degree within the region.

- Consolidation requires a project champion and support from a coalition of top administrators and/or elected officials.

Two case studies revealed that an individual or small core group of individuals was responsible for “driving” the initial concept of consolidation. In the case of Santa Cruz Regional 9-1-1 (SCR911), the “project champion” was both the top county administrator and the city manager of the largest municipality.<sup>1</sup> Together, they garnered support from two other city managers and formed a coalition of four jurisdictional leaders. This core group drove the formation of the independent Joint Powers Authority that became SCR911.

For Charleston County Consolidated 9-1-1 (CCC911), the initial concept was driven by a single police chief.<sup>2</sup> He gained the full support of his mayor, who then persuaded other elected officials within the region to explore the idea as a group. Ultimately, the county became the lead agency, taking on the responsibility of the new consolidated center. CCC911 became a department within the county government structure.

Portland’s Bureau of Emergency Communications (BOEC) has existed in some consolidated model for nearly 40 years, and data sets relative to the initial motivations and people involved were simply not available.

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<sup>1</sup> Dennis Kidd (general manager of Santa Cruz Regional 9-1-1), personal interview with the author, August 22, 2013.

<sup>2</sup> James E. Lake and Allyson E. Burrell (director and deputy director of Charleston County Consolidated 911 Center), respectively, telephone conference call with the author, September 26, 2013.

- Cost efficiency is realized through economies of scale.

There was general agreement between all interview participants that the combining and sharing of 9-1-1 center resources through consolidation was more cost efficient than operating separate agency-specific centers within their respective regions. This qualitative assessment was supported by specific examples of cost reductions in the case of SCR911, and more broadly by technology improvements across all three centers.

SCR911 recently consolidated two additional jurisdictions, so this case revealed accurate quantitative data as to the pre- and post-consolidation 9-1-1 dispatch service costs for those two agencies. In two fiscal years, costs were reduced from approximately \$1.4 million to approximately \$500,000, a 64% drop.<sup>3</sup> Additionally, in all three cases, costs for major technology improvements were shared across all participating agencies. Without consolidation, such expensive technology purchases would either be altogether unaffordable, or made by only the more financially viable 9-1-1 centers; the result likely being an inconsistent and uncoordinated mix of incompatible systems, producing varying levels of quality of service between agencies within the same region. The combined purchasing power of the group appears beneficial to the entire region when common facility, personnel, and technology needs exist.

- Consolidation leads to more focused, institutionalized quality control and service improvement efforts.

Data between case studies revealed a more focused and institutionalized level of quality control, and standards-based improvement efforts emerged after the consolidation of 9-1-1 centers. The concepts supporting this generalization included reduced response times, improved training programs, dedicated quality assurance programs, and accreditations.

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<sup>3</sup> "County of San Benito California: Adopted Budget for Fiscal Year 2012–2013," San Benito County Board of Supervisors, accessed October 26, 2013, <http://cosb.us/wp-content/uploads/FY2012-13-Adopted-Budget.pdf>.

- Efforts result in improved resilience and surge capacity.

Surge capacity is commonly used to reference the ability for hospitals to meet the sudden increased demands of a mass casualty event.<sup>4</sup> However, the concept is applicable to any system subject to sudden, extreme increased demands for service. All three case studies yielded data supportive of the benefit of consolidation to surge capacity.

First, capacity was increased by the centralization and increased number of on-duty emergency communications staff. Instead of smaller numbers of staff spread across multiple 9-1-1 centers, centralization provided a larger number of staff within one facility. This allows for a greater capacity to manage sudden and unexpected increases in demand, such as those created by larger events and catastrophes that occur within a single jurisdiction or cross multiple jurisdictions.

Second, communications personnel in all three case studies possessed a broader level of training and developed skill set than those who had previously worked in a discipline specific center. This provides for a larger pool of personnel to handle any type of emergency call they may come into the 9-1-1 center. While the position becomes more demanding in terms of training and experience, each center studied here has proven that emergency communications personnel can be successfully cross trained to develop the required higher-level skill set.

- Organizational behavior issues present challenges to the successful consolidation of 9-1-1 centers.

A common theme of challenges associated with transitional issues for employees emerged from the research. Possible contributing factors included impacts to pay and benefits, change in working conditions and location, lack of an established organizational identity. These issues were less pronounced in the case of Portland's BOEC, likely because of this organization's long history as a consolidated, inter-disciplinary 9-1-1 center. However, all three case studies

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<sup>4</sup> Samantha K. Watson, James W. Rudge, and Richard Coker, "Health Systems' 'Surge Capacity': State of the Art and Priorities for Future Research," *Milbank Quarterly* 91, no. 1 (2013): 78–122.

revealed that consolidation likely results in, at least in the near-term, additional challenges to employee training, hiring, retention, and morale. Two of the case studies revealed that the transitional employee attrition rate proved higher than anticipated during the early years of consolidation.

Both the SCR911 and CCC911 initial consolidation efforts included offering all existing 9-1-1 center communications personnel employment with the new consolidated organization. Each experienced significant staffing challenges as the number of employees who successfully transitioned was much lower than had been anticipated. The most recent example was found in the CCC911 case study. As each existing 9-1-1 center was consolidated into that new organization, the employee attrition rate remained consistently high. The deputy director estimated only approximately 50% of existing 9-1-1 Center personnel completed the transition into the new agency.<sup>5</sup>

### **Limitations and Additional Research**

Evaluating cost impacts across the case studies proved challenging, due to a general lack of available pre- and post-consolidation quantitative metrics and the numerous variables that exist between 9-1-1 center budgets. Further research is needed to accurately quantify these pre- and post-consolidation costs; which will require the availability of accurate historical and contemporary budget data, sufficient time, and specific analytical expertise relative to public agency budgeting. Additionally, research toward the development of standardized 9-1-1 center performance and cost-efficiency metrics could be beneficial.

### **Conclusion**

From the findings, three major conclusions can be drawn: (1) the consolidation of 9-1-1 centers can result in increased cost efficiency through economies of scale; (2) regionally, 9-1-1 Center consolidation may standardize

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<sup>5</sup> Lake and Burrell, conference call.

and raise the quality of service provided across disciplines and jurisdictions; and (3) in the near-term, organizational behavior issues present significant challenges for the newly consolidated 9-1-1 center.

This study revealed that 9-1-1 center consolidation allows for the sharing of common public safety emergency communications resources between multiple agencies. These resources include facilities, communications infrastructure, and, most importantly for cost efficiency, personnel. This pooling and sharing of resources creates opportunities for cost savings and improved operational efficiency through its resulting economies of scale, especially when the consolidation combines small- to mid-size 9-1-1 centers.

At the most basic level, the increased purchasing power a group of agencies has over that of a single agency provides a direct benefit of consolidation, allowing consolidated 9-1-1 centers to acquire advanced technologies that any of the member jurisdictions might not be able to afford alone. For operations, the increased number of personnel available in a larger 9-1-1 Center has the dual effect of increasing surge capacity and allowing for the more efficient processing of regional workload. The primary factor for realizing these benefits is increased financial resources; infusing additional money into the system would seem to provide the same opportunity for economy of scale benefits to *any* 9-1-1 center, whether consolidated or not. However, given the limits of local public safety budgets for some jurisdictions, consolidation provides a means to attain economy of scale of benefits likely only available to the largest, well-funded independent 9-1-1 centers.

This study also revealed that 9-1-1 center consolidation standardizes the service provided across member jurisdictions across all disciplines—law, fire, and EMS. This standardization generally raises the quality of service for some or all of the member agencies. Through its governance structure, the consolidated 9-1-1 center is held accountable to all of its member agencies. In this way, the service provided becomes consistent and standardized throughout the region. Additionally, the increased size of the consolidated 9-1-1 center budget allows for

improvements to training programs, development of quality assurance programs, and the ability to attain accreditations from recognized professional organizations. Regional standardization alone, of course, does not equate to improved quality of service. However, when consolidated centers take advantage of the service quality improvement opportunities availed through increased common resources, the standardized level of service built into the model becomes a standardized level of *higher quality* service.

Finally, this study revealed the most challenging aspects of 9-1-1 center consolidation involve organizational behavior issues associated with personnel transition. Although examples of positive individual employee transitions were revealed, established employees of separate 9-1-1 centers generally do not successfully transition into the new consolidated organization at the rates anticipated by project managers, with attrition rates as high as 50% for the most recent transition examined in this study. Possible reasons for this difficulty in transition include negative impacts to pay and benefits, loss of identity with the previous organization, higher skill set requirements of the new interdisciplinary position, and changes to working conditions and location. These challenges seem to be more pronounced during the early years of consolidation and may fade with time as the organization develops and solidifies its unique organizational identity.

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## I. INTRODUCTION

*The Chinese use two brush strokes to write the word “crisis.” One brush stroke stands for danger; the other for opportunity. In a crisis, be aware of the danger—but recognize the opportunity.*

—John F. Kennedy,  
speech in Indianapolis, April 12, 1959

### A. PROBLEM STATEMENT—BACKGROUND

The 9-1-1 emergency communications system as we know it today was developed in the late 1960s and early 1970s.<sup>1</sup> Since then, the system has become the primary link between the public and our nation’s local public safety practitioners—police, fire, and emergency medical services—in times of crisis. The intermediary component of this emergency communications system is the public safety telecommunications professional. These women and men staff the designated Public Safety Answering Points (PSAPs), or 9-1-1 centers, throughout the country; answering an estimated 240 million emergency calls for help annually and, in turn, dispatching field personnel and coordinating their responses over the radio.<sup>2</sup> The job of these professionals is to ensure that emergency calls are answered quickly and properly, 24 hours per day, 365 days per year, and that the appropriate emergency resources are guided to where they are needed as rapidly and efficiently as possible.

There are more than 7,500 PSAPs in the United States.<sup>3</sup> The vast majority of PSAPs are relatively small and associated with a single municipal or county public safety agency. For example, in California 56% of the state’s 9-1-1

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<sup>1</sup> Gary Allen, “The History of 911,” *Dispatch Magazine On-Line*, accessed January 20, 2013, <http://www.911dispatch.com/911/history/index.html>.

<sup>2</sup> “Public Safety Communications—Facts & Figures,” *Dispatch Magazine On-Line*, accessed October 15, 2013, <http://www.911dispatch.com/public-safety-communications-facts-figures/>.

<sup>3</sup> “PSAP Registry,” Federal Communications Commission, accessed January 20, 2013, <http://transition.fcc.gov/pshs/services/911-services/enhanced911/psapregistry.html>.

centers have only three workstations or less.<sup>4</sup> However, some are consolidated 9-1-1 centers servicing multiple agencies. This model of consolidated PSAP has been considered by counties and municipalities across the nation as a means for cost cutting, cost sharing, efficiency, and improved service. Consolidation of 9-1-1 emergency dispatch service may also result in improved communications interoperability, which was noted as an important problem by the 9/11 Commission<sup>5</sup> and New York City's McKinsey Report.<sup>6</sup>

Although the amalgamation of public safety dispatch centers is not a new concept, with some amalgamated centers having operated for more than 40 years,<sup>7</sup> the interest in consolidation appears to have increased over the past five years; possibly due to reductions in revenue broadly experienced by state and local governments across the United States.<sup>8</sup> The resulting cuts to local safety budgets have forced unprecedented reductions in staffing and resources, leading to significantly reduced service levels. Some localities, such as Camden, NJ, and Stockton, CA, have seen revenue declines that threaten their ability to provide core, essential services. This has forced local governments to consider consolidation as a possible cost cutting measure.

Budget cuts in Camden, which is considered one of the most crime-plagued cities in the country, forced police layoffs.<sup>9</sup> Subsequent budget shortfalls

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<sup>4</sup> "California 9-1-1 Strategic Plan," California Office of the Chief Information Officer, accessed January 20, 2013, [http://www.cta.ca.gov/PSCO/911/pdf/911\\_Strategic\\_Plan.pdf](http://www.cta.ca.gov/PSCO/911/pdf/911_Strategic_Plan.pdf).

<sup>5</sup> National Commission on Terrorist Attacks upon the United States, *9/11 Commission Report*, (New York: W. W. Norton, 2011). Authorized audio edition, abridged.

<sup>6</sup> "Improving NYPD Emergency Preparedness and Response," McKinsey & Company, accessed February 8, 2014, <https://www.hsdl.org/?view&did=1175>.

<sup>7</sup> Walter Currier and James Dye, "Consolidated Dispatch: Embraced or Feared?," *9-1-1 Magazine*, June 1, 2011, <http://www.9-1-1magazine.com/AECOM-Consolidated-Dispatch-Centers>.

<sup>8</sup> "Recession-Battered Cities Combine Services," *USA Today*, October 19, 2012, <http://www.usatoday.com/story/news/nation/2012/10/18/recession-hit-cities-combines-services/1634301/>.

<sup>9</sup> Elizabeth Fiedler, "Crime-Riddled N.J. City Considers Axing Police Force," *WBUR*, accessed October 15, 2013, <http://www.wbur.org/npr/159171796/riddled-with-crime-n-j-city-turns-to-county-police?ft=3&f=159171796>.

drove that city to consider even more dramatic steps, such as replacing the city's police force with one operated by the county.<sup>10</sup> In Stockton, years of budget shortfalls forced the elimination of a quarter of its sworn police force (99 police officer positions)<sup>11</sup> and 48 firefighter positions in 2011.<sup>12</sup> Despite the draconian cuts, Stockton's general fund ultimately became insolvent, requiring the city to seek Chapter 9 bankruptcy protection—becoming, at the time, the largest municipality to ever do so.<sup>13</sup>

For Stockton, a city with a population of just fewer than 300,000, the public safety cuts negatively correlated with an immediate increase in violent crime. Stockton's violent crime (homicide, rape, robbery, and aggravated assault) rose by more than 14% from 2010 through 2012.<sup>14</sup> Most concerning, the city experienced consecutive record-breaking years for numbers of criminal homicide, with 58 in 2011 and 71 in 2012. Table 1 presents Stockton's overall crime indices and violent crime statistics for the 15-year period ending in 2012.

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10 Ibid.

11 Jim Christie, "Stockton, California to File for Bankruptcy," *Reuters*, June 27, 2012, <http://www.reuters.com/article/2012/06/27/us-economy-stockton-idUSBRE85Q07X20120627>.

12 "City of Stockton Lays off 36 Firefighters," *Stockton: Central/East/South News*, June 30 2011, <http://stockton-central.news10.net/news/news/75195-city-stockton-lays-36-firefighters>.

13 The city of Detroit subsequently became the largest city to ever seek municipal bankruptcy protection in 2013.

14 Stockton Police Department Crime Information Center, *Crime in Stockton over 15 Years*, (Stockton, CA: Stockton Police Department, February 2013).

Table 1. Stockton Crime Statistics—Uniform Crime Reporting (UCR) and California Crime Index (CCI)<sup>15</sup>

**Stockton Crime Over 15 Years**

Crime Indexes				Violent Crime				
	UCR	%	CCI	Homicide	Rape	Robbery	Agg Aslt	
1998	17,632		10,055	27	116	1,011	1,553	
1999	16,681	-5%	9,437	-6%	32	130	904	1,742
2000	16,991	2%	9,760	3%	30	114	1,049	1,779
2001	19,843	17%	11,533	18%	30	144	1,030	2,092
2002	21,188	7%	13,014	13%	36	141	1,171	2,345
2003	22,320	5%	13,594	4%	38	155	1,208	2,061
2004	22,170	-1%	14,234	5%	40	108	1,187	2,365
2005	23,123	4%	15,089	6%	41	109	1,357	2,695
2006	24,063	4%	15,720	4%	37	102	1,519	2,630
2007	22,940	-5%	14,991	-5%	29	105	1,615	2,467
2008	22,336	-3%	14,854	-1%	24	112	1,558	2,628
2009	19,163	-14%	12,577	-15%	33	82	1,259	2,329
2010	20,272	6%	13,476	7%	49	107	1,413	2,464
2011	19,704	-3%	13,590	1%	58	90	1,323	2,684
2012	19,954	1%	19,886	N/A	71	90	1,556	2,912
								Total CCI % Total UCR %
								2,707 2,707
								2,808 4% 2,808 4%
								2,972 6% 2,972 6%
								3,296 11% 3,296 11%
								3,693 12% 3,693 12%
								3,462 -6% 3,462 -6%
								3,700 7% 3,700 7%
								4,202 14% 4,202 14%
								4,288 2% 4,288 2%
								4,216 -2% 4,216 -2%
								4,322 3% 4,322 3%
								3,703 -14% 3,703 -14%
								4,033 9% 4,033 9%
								4,155 3% 4,155 3%
								4,629 11% 4,629 11%

Arguably, police and fire service level reductions are jeopardizing public safety and thereby, threatening homeland security. The homeland security enterprise as a whole then must necessarily identify effective means to maintain or enhance current safety service levels despite shrinking revenues. The consolidation of governmental resources in general may be a key component toward accomplishing the homeland security enterprise's mission, and, specifically, the consolidation of PSAPs may improve homeland security through improved cost efficiency and communications interoperability.

On the surface, it would appear much duplication of effort exists among local public safety agencies with regard to emergency communications. Many agencies own and maintain a separate PSAP, each requiring physical space and a vast support infrastructure composed of valuable administrative, technological, and personnel resources. Perhaps this perceived inefficiency is justified by less obvious benefits, such as the need or desire for complete control at the agency level to meet the specific service expectations of the community it serves. Or, perhaps this is just as it appears on the surface, an inefficient use of diminishing resources; a service requirement that might be better served through the consolidation and sharing of these resources. Thus, PSAP consolidation might be considered a "smart practice" for the homeland security enterprise.

<sup>15</sup> Ibid.

Researching existing consolidated PSAP to determine the effects on safety service levels, costs, interoperability, and related issues will contribute to the base of knowledge upon which homeland security leaders can make informed decisions. Such research may also provide insight as to how to accomplish an effective consolidation once that decision has been made. The experiences of others who have successfully navigated the issues surrounding a major 9-1-1 center consolidation should provide valuable lessons and a more holistic understanding of the scope of such a project. Areas to consider with regard to these “lessons” might include the organizational behavior (cultural), technological, environmental, economic, and political challenges of bringing together 9-1-1 communications centers that have traditionally remained separate.

## **B. RESEARCH QUESTION**

Within the context described above emerges the question, how successful has local emergency 9-1-1 communications center consolidation been so far? Specifically:

- Have existing consolidated 9-1-1 communications centers realized improved cost efficiency while also maintaining or improving service levels?
- Have common organizational strengths and weaknesses emerged that provide insight for agencies considering or implementing a 9-1-1 Center consolidation?

These questions provide the foundation for the research that follows.

## **C. LITERATURE REVIEW**

The 9/11 Commission Report provides a thorough review of the events surrounding the September 11, 2001, terrorist attacks. The report notes that the inability to communicate was a critical element at all three attack sites, strongly indicating that “compatible and adequate communications among public safety organizations at the local, state, and federal levels remains an important problem.”<sup>16</sup> The New York Police Department’s McKinsey Report provides an in-

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<sup>16</sup> National Commission on Terrorist Attacks, 9/11 Commission Report, authorized audio edition.

depth examination of that agency's overall response to the 9/11 attacks, identifying 20 improvement opportunities. Several of these opportunities involved communications, either through enhancement of command and control structure or communications technologies.<sup>17</sup> Neither report, however, examines how an integrated, cross-jurisdictional and/or cross-discipline emergency communications center might provide full or partial solutions to these problems.

The existing literature relative to PSAP consolidation is limited. That which does exist can be divided into several main categories: studies commissioned by an agency, or group of agencies, to explore the feasibility of consolidating services (by far the largest amount of available research); trade magazine and newspaper articles; and other literature, to include papers issued by government sector professional associations and academic theses.

## **1. Studies Commissioned by Agencies**

A number of “feasibility studies” have been completed to examine and make recommendations as to PSAP consolidation. These studies were requested and funded by groups of geographically proximate agencies that had some political or financial interest in consolidation. As an example, a state-funded study in New Jersey explored consolidation of services for cost savings and improved interoperability for Atlantic County.<sup>18</sup> The impetus for that study was “a result of federal initiatives and state legislation geared toward interoperability and reducing costs via increased shared services.” The study was funded through New Jersey’s Enhanced 9-1-1 county grant program, which is intended to encourage localities to consolidate emergency communications resources.<sup>19</sup>

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17 “Improving NYPD Emergency,” McKinsey.

18 L. Robert Kimball (firm), *9-1-1 Consolidation Feasibility Study Baseline Assessment and Conclusions Report* (Edinburg, PA: Kimball & Associates, June 2007), [http://www.aclink.org/oep/pdf\\_files/consultant\\_draft\\_report06-01.pdf](http://www.aclink.org/oep/pdf_files/consultant_draft_report06-01.pdf).

19 Bonny Fraser, New Jersey 9-1-1 Consolidation Study—Saving Lives, Increasing Value: Opportunities and Strategies for Consolidating New Jersey’s 9-1-1 Emergency Services (New Brunswick, NJ: John J. Heldrich Center for Workforce Development, October 2006), 11–12, [http://www.state.nj.us/911/resource/study/nj9-1-1\\_consolidation\\_study\\_final\\_report\\_october06.pdf](http://www.state.nj.us/911/resource/study/nj9-1-1_consolidation_study_final_report_october06.pdf).

Other feasibility studies examined for this review, listed below, generally made similar findings in support of consolidation. These studies are associated with the following jurisdictions/regions:

- Barnstable County, Massachusetts<sup>20</sup>
- City of Parma, Ohio<sup>21</sup>
- Cities of Ashland and Wooster, and Wayne County, Ohio<sup>22</sup>
- Towns of Bridgewater, East Bridgewater, Duxbury, Halifax, Kingston, Plympton, Whitman, and Plymouth, Massachusetts<sup>23</sup>
- 14 communities in Cuyahoga County, Ohio<sup>24</sup>
- Towns of Ashland, Framingham, Holliston, Hopkinton, Natick, Sherborn, Sudbury, and Wayland—the “MetroWest” area of Middlesex County, Massachusetts<sup>25</sup>

The general theme in favor of merging public safety communications centers that emerged from the various studies was based upon several identified benefits:

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<sup>20</sup> Intertech Associates, *Barnstable County E911 Regional Feasibility Study: Final Report* (Barnstable County, MA: Barnstable County Regional Emergency Planning Committee, December 12, 2011), [http://www.chatham-ma.gov/Public\\_Documents/ChathamMA\\_Manager/Final%20Report%20Barnstable%20County%20Regional%20911%20Feasibility%20Stu.pdf](http://www.chatham-ma.gov/Public_Documents/ChathamMA_Manager/Final%20Report%20Barnstable%20County%20Regional%20911%20Feasibility%20Stu.pdf).

<sup>21</sup> Daila Shimek, Kimberly R. Vining, and Scott Winograd, *Case Studies for Consolidated Public Safety Dispatch Center Feasibility Study: The Next Steps* (Cleveland State University, Maxine Goodman Levin College of Urban Affairs, August 23, 2011), [http://engagedscholarship.csuohio.edu/cgi/viewcontent.cgi?article=1422&context=urban\\_facpub](http://engagedscholarship.csuohio.edu/cgi/viewcontent.cgi?article=1422&context=urban_facpub).

<sup>22</sup> Scott Winograd and Daila Shimek, *Consolidated Dispatch Center Feasibility Study: Ohio Case Studies* (Cleveland State University, Maxine Goodman Levin College of Urban Affairs, August 29, 2011), <https://www.hndl.org/?view&did=701255>.

<sup>23</sup> AECOM, “Old Colony Planning Council Regional Emergency Communications Center Dispatch Feasibility Study,” (Lynchburg, VA: AECOM, April 2013), [http://www.ocpcrpa.org/docs/comprehensive/Old\\_Colony\\_Regional\\_911\\_Dispatch\\_Final\\_Report.pdf](http://www.ocpcrpa.org/docs/comprehensive/Old_Colony_Regional_911_Dispatch_Final_Report.pdf).

<sup>24</sup> AECOM Design, CTA Communications, *New River Regional 9-1-1 Emergency Communications Consolidation Feasibility Study* (Lynchburg, VA: AECOM, July 17, 2009), [http://www.roanoke.com/pdfs/911study\\_nra.pdf](http://www.roanoke.com/pdfs/911study_nra.pdf).

<sup>25</sup> Webb Consulting Services, *Regional Emergency Communications Center Feasibility Study for the Middlesex Sheriff’s Office and the Metro West Regional Public Safety Council* (Middlesex County, MA: MetroWest Regional Public Safety Council), February 8, 2012, [http://natickma.vt-s.net/sites/natickma/files/file/file/webb\\_consulting\\_-\\_mrpsc\\_recc\\_feasibility\\_study\\_-final\\_02-08.pdf](http://natickma.vt-s.net/sites/natickma/files/file/file/webb_consulting_-_mrpsc_recc_feasibility_study_-final_02-08.pdf).

- Significant, but long-term, cost savings resulting from reduced office space, reduced/shared personnel resources, economies of scale (increased production with fewer inputs)
- Enhanced service levels (mostly for smaller agencies)
- Improved voice and data communications interoperability
- Improved and more efficient use of technology, through shared IT infrastructure, increased purchasing power, and standardization across jurisdictions

The studies also presented some challenges/concerns, which include:

- Loss of autonomy and local control
- Decreased ability to meet specific, localized goals/needs of individual communities and agencies
- Personnel concerns relative to combining staff from differing agencies with disparate pay/benefit packages and administrative personnel regulations

In general, the findings concluded these challenges were manageable and could be overcome with a well-organized, inclusive governance structure such as a Joint Powers Authority (JPA) or Council of Governments (COG), coupled with a very strong “champion” of the effort at the executive/political level. The JPA and COG governance structures address loss of local control concerns by providing equal representative voices for each participating agency. The project champion at the executive/political level provides the motivation for administrators to overcome the resistance to change that is almost certain to occur with any consolidation effort.

With regard to the need for a “project champion,” a special leadership style may be required. Marcus, Dorn, and Henderson present the idea that a new form of leadership is necessary to accelerate the organizational change that must occur for enhanced preparedness post-9/11:

Leadership could work—and it has—to fortify the silo mentality of agencies, this despite the fact that it is the coordinated action of

many agencies working together that is essential to advancing the national preparedness effort.<sup>26</sup>

The executive/political leader mentioned in the literature here is representative of the meta-leadership necessary to successfully consolidate multiple agencies' emergency communications centers, as the full integration of 9-1-1 dispatch services involves the collaboration of multiple jurisdictions, agencies, and disciplines. For example, a fully consolidated regional PSAP would require cooperation between the elected officials of several local governments, cooperation within and across the public safety agencies of those local jurisdictions, and cooperation within and across all three disciplines—law enforcement, fire services, and emergency medical services (EMS).

## **2. Trade Magazine and Newspaper Articles**

Generally, trade magazine and newspaper articles present a fairly neutral position on consolidation of emergency dispatch centers. Such articles are often simply a reporting of a recently released feasibility study, as discussed above, or of a governmental decision to move forward with consolidation. They sometimes discuss and present the pros and cons of consolidation, which are in line with the benefits and challenges listed above. They do, however, provide more of a personal view regarding the issue from those involved in the process, such as agency directors, police chiefs, and fire chiefs. This sometimes reveals polar opposite views regarding consolidation, unique to the circumstances of individual agencies.

Several articles in the trade magazine *Government Technology—Digital Communities*, for example, report on specific PSAP or general IT consolidation efforts with a focus upon the actual brand of technology being implemented. The articles sometimes present a very limited description of the problems

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<sup>26</sup> Leonard J. Marcus, Barry C. Dorn, and Joseph M. Henderson, *Meta-Leadership and National Emergency Preparedness: Strategies to Build Government Connectivity* (Working Papers, John F. Kennedy School of Government, Center for Public Leadership, Harvard University, Cambridge.) Accessed January 27, 2013., <https://www.hsl.org/?view&did=5180>.

encountered during, and benefits resulting from, the consolidation. For example, an article titled “Ann Arbor and Washtenaw County, Mich., Co-Locate 911 Staffs in One Dispatch Center,” includes a statement from an involved police sergeant indicating the “co-location of dispatch services” will provide cost savings and enhanced emergency services.<sup>27</sup> The same article makes a slight reference to problems involving the integration of the police mobile data computer system. Another article, “Akron, Ohio, and Summit County Collaborate on Cellular 911 Service,” reports that a City-County partnership led to the shared purchase of a new 9-1-1 emergency phone system that saved approximately \$150,000, when compared to the cost of purchasing separate systems.<sup>28</sup> In general, claims of cost savings revolve around the sharing of costs for common facilities, equipment, and technology between multiple agencies. Articles such as these provide virtually no in-depth cost analysis or detailed discussion of the challenges and benefits associated with PSAP consolidation

One 9-1-1 *Magazine* article by Marc Bono provides many items to consider relative to the value of PSAP consolidation.<sup>29</sup> The article lists specific considerations that go beyond basic cost savings for those contemplating consolidation, encouraging a more holistic evaluation process that incorporates overall quality of service and the identification of hidden expenses. For example, the author discusses the possible hidden costs associated with dispatchers’ ancillary duties—duties other than standard handling of 9-1-1 calls. When a consolidation occurs, these ancillary duties do not disappear and must be accounted for in pre-consolidation cost/benefit analyses.

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<sup>27</sup> “Ann Arbor and Washtenaw County, Mich., Co-Locate 911 Staffs in One Dispatch Center,” *Government Technology—Digital Communities*, accessed February 9, 2013, <http://www.digitalcommunities.com/articles/Ann-Arbor-and-Washtenaw-County-Mich.html>.

<sup>28</sup> “Akron, Ohio, and Summit County Collaborate on Cellular 911 Service,” *Government Technology—Digital Communities*, accessed January 21, 2013, <http://www.digitalcommunities.com/articles/Akron-Ohio-and-Summit-County-Collaborate.html>.

<sup>29</sup> Marc W. Bono, “Identifying Value in PSAP Consolidations,” *9-1-1 Magazine*, accessed February 9, 2013, <http://www.9-1-1magazine.com/Identifying-Value-in-PSAP-Consolidations/>.

Newspaper articles reporting on consolidation efforts sometimes include the viewpoints of the involved leaders, which at times are conflicting. Some express concern regarding the loss of local control and question the potential cost savings often touted in feasibility studies. For example, in an article by reporter Michael Bailey of Cape Cod's *The Enterprise*, one of several police chiefs involved in a potential consolidation effort stated, "We feel we would lose a lot of local control if it was a state operation."<sup>30</sup> Still others embrace the concept because of clear staffing and efficiency benefits for their own agencies. A police chief involved in the same potential consolidation effort stated, "The initiative is coming at a perfect time for us. We'd like to 'civilianize' dispatch. Our police officers work the desk two to four times a month and their ability to maintain a solid knowledge of dispatch functions is challenging because, the rest of the time, they're out on the streets."<sup>31</sup> While articles such as these present generalized statements about potential benefits and challenges, they do not provide more in-depth analysis to determine the legitimacy of such claims.

### **3. Other Literature—Theses**

Although there appears to be no theses specifically focused on the consolidation of emergency 9-1-1 communications centers, several have been written regarding the broader topic of combining public safety agencies and services.

One such thesis by Vinicio R. Mata, "The Contribution of Police and Fire Consolidation to the Homeland Security Mission," explores the value of combining municipal police and fire departments into a single public safety agency, with personnel trained and equipped for both roles.<sup>32</sup> Through a

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<sup>30</sup> Michael C. Bailey, "Public Safety Departments On Board with Regional Dispatch Model," *The Enterprise*, September 28, 2012, <http://www.capenews.net/communities/region/news/2121>.

<sup>31</sup> Ibid.

<sup>32</sup> Vinicio R. Mata, "The Contribution of Police and Fire Consolidation to the Homeland Security Mission" (Master's thesis, Naval Postgraduate School, 2010), <https://www.hsl.org/?view&did=27185>.

comparative case study of three existing consolidated public safety agencies, the thesis suggests that consolidation serves to improve communication between disciplines, provides a more unified command and leadership structure, and produces a higher level of emergency preparedness through its comprehensive approach to public safety emergencies. Although this thesis does not address 9-1-1 dispatch centers, the same purported benefits might also apply to a consolidation involving only the emergency communications centers of these two disciplines. A question not explored by Mata is whether police and fire agency consolidation increases or decreases costs.

Another thesis, titled “Can Local Police and Sheriff’s Departments Provide a Higher Degree of Homeland Security Coordination and Collaboration through Consolidation of Police Services?” examines the strengths and weaknesses of a complete consolidation of law enforcement agencies within a specific county or region (sheriff’s departments and police departments).<sup>33</sup> The author notes two common “non-starters” for consolidation efforts, which fit within a common theme found throughout the literature: loss of local control and reduction of responsiveness to community needs.<sup>34</sup> However, he describes a specific example where these two concerns were found to be false by agencies that had developed an integrated public safety response. This example also demonstrates that the two relatively small agencies were able to increase service levels while at the same time reduce administrative personnel costs.<sup>35</sup> Notably, the first key step recognized by these two agencies, should they move forward with consolidation, was the establishment of a Joint Powers Authority. This need for an effective governance structure as a key component of any consolidation is common throughout the literature, and should be examined in more depth as it applies to PSAP consolidation specifically.

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<sup>33</sup> Michael P. Callagy, “Can Local Police and Sheriff’s Departments Provide a Higher Degree of Homeland Security Coordination and Collaboration through Consolidation of Police Services?” (Master’s thesis, Naval Postgraduate School, 2010), <https://www.hSDL.org/?view&did=16058>.

<sup>34</sup> Ibid., 32.

<sup>35</sup> Ibid., 33.

In his thesis, Michael P. Callagy also notes a potential cost-savings benefit for the consolidation of these agencies through the sharing of costs required to update antiquated systems, specifically referencing each agency's independent dispatch center. One of his recommendations is to establish a regional dispatch center for San Mateo County, California.<sup>36</sup> He claims that "the redundancy of dispatch centers plays a major part in the 'disconnect' of intelligence information in the county" and suggests that dispatch centers throughout California should be combined into regional centers.<sup>37</sup> Callagy also claims that "tremendous" financial savings could result, but provides no figures as to how much savings might actually be realized. He also claims that the consolidation of dispatch centers could result in an "increase in communication throughout the county as information on crimes that were just committed in one jurisdiction could be readily broadcast throughout the county resulting in better coordination."<sup>38</sup> This theme of improved intelligence sharing and coordination, coupled with potential costs savings, is also common to the literature and deserves additional examination.

There appears to be a significant gap in literature examining established consolidated PSAPs to evaluate the actualized strengths and challenges of consolidation. As one New Jersey study specifically noted:

The results of consolidation are not well documented. Examples of cost savings are more commonly cited at the state level than at the local level. Estimates of cost savings related to personnel are particularly elusive. State and regional officials strongly believe that consolidation leads to improved service, although it is not clear how improved service is measured.<sup>39</sup>

Existing literature has been focused on examining the feasibility of consolidating multiple PSAPs within a similar region or county, and has often been driven by State-mandated, or at least State-encouraged, efforts toward

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<sup>36</sup> Ibid., 114.

<sup>37</sup> Ibid., 114–115.

<sup>38</sup> Ibid., 115.

<sup>39</sup> Fraser, *New Jersey 9-1-1 Consolidation Study*, 2.

consolidation. Additional research regarding the actual strengths and challenges realized post-consolidation may be useful to the homeland security enterprise.

The literature identifies several key claims to justify consolidation: (1) financial savings through efficiencies and shared resources (economies of scale), (2) improved public safety service levels, and (3) improved communications interoperability. Examining the extent to which these purported benefits truly occur post-consolidation will allow for more informed decisions by those working hard to maintain and enhance public safety during times of challenged financial resources. This examination and resulting knowledge will also better inform those in public safety regarding their decisions relative to improved radio and data communications interoperability.

#### **D. METHOD OF INQUIRY**

This research was conducted in an attempt to answer the primary question, “How successful has emergency 9-1-1 communications center consolidation been so far for local public safety agencies?” The research utilized a qualitative multiple case-study method of inquiry, including in-depth interviews, as outlined by Yin.<sup>40</sup> Such a qualitative approach, as described by Yvonne N. Bui, “starts with specific situations, finds patterns or themes in the data, establishes a tentative hypothesis, and then develops theories or conclusions.”<sup>41</sup> This method was employed due to a general lack of previous academic research specific to this subject matter and the need to examine causality; namely, the causal nexus between emergency 9-1-1 communications center consolidation and its impacts upon “local” public safety at the regional (county) and municipal levels.

Case-study research is an accepted methodology for the description, interpretation, verification, and evaluation of policies, practices, systems, and

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<sup>40</sup> Robert K. Yin, *Case Study Research: Design and Methods* (Los Angeles, CA: SAGE, 2009), 107.

<sup>41</sup> Yvonne N. Bui, *How to Write a Master’s Thesis* (Los Angeles, CA: SAGE, 2009), 14.

generalizations within a real-world context.<sup>42</sup> Further, case-study research is a common and appropriate method in the social science disciplines, including public administration; and has a distinct advantage over other methods when “[a] ‘how’ or ‘why’ question is being asked about a contemporary set of events, over which the investigator has little or no control.”<sup>43</sup> The case-study method employed here sought to reveal the strengths and challenges of consolidation through a detailed examination of three existing, well-established consolidated emergency 9-1-1 communications centers (9-1-1 centers). The multiple case-study design was preferred here, over a single case-study approach, as analysis consistently applied across several cases should provide a stronger basis for generalized conclusions and recommendations.<sup>44</sup>

## 1. METHOD

A multiple case study of three consolidated centers was conducted: (1) Santa Cruz (CA) Regional 9-1-1 (SCR911); (2) City of Portland (OR) Bureau of Emergency Communications (BOEC), and (3) Charleston County (SC) Consolidated 9-1-1 Center (CCC911).

These centers were selected for study as they are established regional centers, serving more than one discipline across multiple jurisdictions. Each also has a different governance structure, which is a key focus of this research. SCR911 operates independently as a Joint Powers Authority (JPA). Portland’s BOEC operates a Center that contracts with multiple outside jurisdictions to provide 9-1-1 dispatch services. CCC911 is operated by Charleston County through an intergovernmental agreement with its member agencies. The centers also differ in size—in terms of employees, member agencies, and populations served. This provided the opportunity to explore possible variations with regard to

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<sup>42</sup> Paul D. Leedy and Jeanne Ellis Ormrod, *Practical Research: Planning and Design*, 10th ed. (Boston: Pearson, 2013), 140.

<sup>43</sup> Yin, *Case Study Research*, 5, 13.

<sup>44</sup> Ibid., 19–20.

governance structure and their ability to adequately meet specific community/agency needs.

Data were collected in the form of documents, such as annual budget reports, strategic plans, news articles, staffing rosters, scheduling guidelines, customer service surveys, audit reports, and statistical reports related to staffing, call load and call processing. This data was used to guide semi-structured interviews with each Center's executive manager at the Director or Deputy Director level. Interviews were conducted on-site in the case of SCR911 and Portland's BOEC, and over the telephone for CCC911. These in-depth interviews with executives provided context to the analysis and garnered insight from leaders in the emergency communications field, which provided meaning to the data collected and extracted "lessons learned" from their individual and collective experiences with 9-1-1 center consolidations. Interviews such as these have been shown to be an important data gathering method when seeking to understand how a process or state of affairs, such as center consolidation, came to be.<sup>45</sup> To mitigate risk of bias, information gathered from the interviews was corroborated to the extent possible by the aforementioned and other sources.

Direct observation in the form of on-site visits was included as another source of data gathering. The on-site interview of the SCR911's manager and Portland's BOEC manager provided an opportunity to observe center operations first-hand. Observations of on-coming/outgoing personnel at shift changes, team meetings or "roll calls," working conditions (building, equipment, furniture, etc.) and actual interactions of telecommunicators (emergency call-takers and dispatchers) with citizens and field personnel, provided additional data to support findings and conclusions.

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45 Ibid., 106, 108.

## **E. SEMI-STRUCTURED DATA COLLECTION FRAMEWORK AND INTERVIEW QUESTIONS**

Data collection was focused yet remained flexible, allowing for themes that developed during the collection process to drive further inquiry into specific areas. The following framework and associated pre-scripted interview questions for data collection was consistently employed across all three case studies.

### **1. General Facts Regarding the Center (Location, Size, Structure, Disciplines Served, Population Served, Etc.)**

- When was your 9-1-1 Center first established (consolidated)?
- How many personnel are employed by the center and what are their job classifications? Has staffing historically increased, decreased, or remained stable?
- What is your shift structure (personnel deployment schedule)?
- Which public safety agencies and disciplines does the center serve?

### **2. Budget / Efficiency**

- Does consolidation save money and improve efficiency? How?
- Have you compared post-consolidation operational costs to pre-consolidation costs? What were the results? Has consolidation reduced costs for the member/participating agencies?
- What is the estimated cost per telephone transaction (9-1-1 call)?

### **3. Service Levels**

- Does consolidation improve the level of service provided to customers, both internal and external (faster response times, quality of communications with field units, more regional coordination of available resources, etc.)? Have you evaluated customer satisfaction through surveys or some other feedback mechanism?

- How are unique, agency-specific service issues managed? For example, do certain agencies have specific community or operational expectations regarding service that your Center addresses differently than others? This speaks to the level of “local control” each agency maintains with regard to 9-1-1 call processing and dispatching of field resources.

#### **4. Interoperability**

- Does consolidation benefit or hinder regional voice and data radio interoperability?
- Since your center was established, has communications equipment or other technology become more standardized across member agencies to improve interoperability across jurisdictions and/or disciplines?
- Does your center also provide some level of information technology services to member/participating agencies?

#### **5. Governance**

- What is your center’s governance structure?
- During the initial consolidation process, what other forms of governance were considered, if any? How was the governance structure for your center ultimately decided upon?

#### **6. Organizational Behavior**

- Was there significant support or resistance from various bargaining groups (unions) during the initial consolidation?
- Were employees involved in the consolidation planning and implementation process, if so, to what extent?
- What unanticipated benefits or challenges emerged with regard to personnel matters during the consolidation process?

#### **7. Politics**

- During the initial consolidation process, was there a clear “champion” of the concept/effort? Was this person an elected official?
- Which agency/jurisdiction would you consider to have been the lead agency during the initial consolidation effort?

- What were the primary motivations/drivers behind the consolidation effort? Was there some sort of crisis situation or specific set of circumstances that increased pressure to consolidate 9-1-1 center resources?
- Does consolidation meet with significant political resistance?

## 8. Other Considerations

- What other models of consolidation are you aware of and how do they differ from yours?
- Are consolidation plans generally developed from the top down or bottom up? To what extent are line level and supervisory staff involved in the consolidation process?
- Ultimately, who are the decision makers for your 9-1-1 center policy and operations?
- What is the most significant benefit of 9-1-1 center consolidation? What is the most significant challenge?

## F. ANALYSIS PROCESS

Data was analyzed according to the following steps.<sup>46</sup>

- Case details—A chronological summation of facts related to each center
- Categorization—Data were clustered into 8 categories: general facts, budget/efficiency, service, interoperability, governance, organizational behavior, politics, and other considerations
- Interpretation of single instances—Data were examined for specific meaning in relation to the strengths or weaknesses of consolidation, referred to herein as “first order concepts”
- Identification of patterns—The interpreted data were examined in more detail for underlying themes and patterns, referred to herein as “second order themes”
- Synthesis and generalizations—An overall portrait of the combined data case was constructed, referred to herein as “overarching dimensions”
- From this analytical process, key findings emerged, leading to the major conclusions

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46 Leedy and Ormrod, *Practical Research*, 141–142.

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## II. CASE STUDY—SANTA CRUZ REGIONAL 911

*Geographically, we were just 17 miles from the Silicon Valley; technologically, we were 1,000 years behind the Silicon Valley.*

—Dennis Kidd, SCR911 general manager,  
speaking to the technological upgrades  
made possible through consolidation

### A. BACKGROUND

Santa Cruz Regional 911 (SCR911) is an independent public agency operating as a Joint Powers Authority (JPA) that provides 9-1-1 emergency communications and dispatch services for its member public safety agencies. This JPA was established in 1994 by four local government entities: county of Santa Cruz, city of Santa Cruz, city of Capitola, and city of Watsonville. These four founding members now own and primarily control the SCR911 JPA. Upon its creation, SCR911 consolidated four separate 9-1-1 emergency communications centers (9-1-1 centers) previously operated by each of the founding jurisdictions.

Initially, SCR911 provided 9-1-1 dispatch services for all law enforcement, fire service, and emergency medical services (EMS) agencies within Santa Cruz County, except for those of the City of Scotts Valley. In 2011, SCR911 added the neighboring county of San Benito and city of Hollister. SCR911 also services several local fire districts, American Medical Response West (the area EMS paramedic and ambulance transport provider), and the Santa Cruz County Animal Shelter. Table 2 presents the SCR911 member and user agencies.

Table 2. SCR911 Partner Agencies

Law Agencies (6)	Fire/Rescue Agencies (12)		EMS Agencies (1)
Santa Cruz County Sheriff's Office	Santa Cruz Fire Department	Watsonville Fire Department	American Medical Response – West
San Benito County Sheriff's Office	Hollister Fire Department	Scotts Valley Fire Department	
Santa Cruz Police	Ben Loman Fire	Central Fire	
Watsonville Police	Felton Fire	Boulder Creek Fire	
Capitola Police	Branciforte Fire	Aptos Fire	Other Agencies Served
Hollister Police	UCSC Fire Department	Zayante Fire	Santa Cruz County Animal Shelter

SCR911 comprises 55 employees, including 42 public safety telecommunicators (dispatchers) and several information technology (IT) staff members. Administratively, the center is led and supervised by a general manager, two dispatch supervisors, two program managers, and two program supervisors. This staffing level has remained fairly consistent since the initial formation of the JPA, but has increased slightly with the addition of IT personnel and dispatch positions as additional agencies signed on for SCR911 services. Figure 1 presents the SCR911 organizational structure.

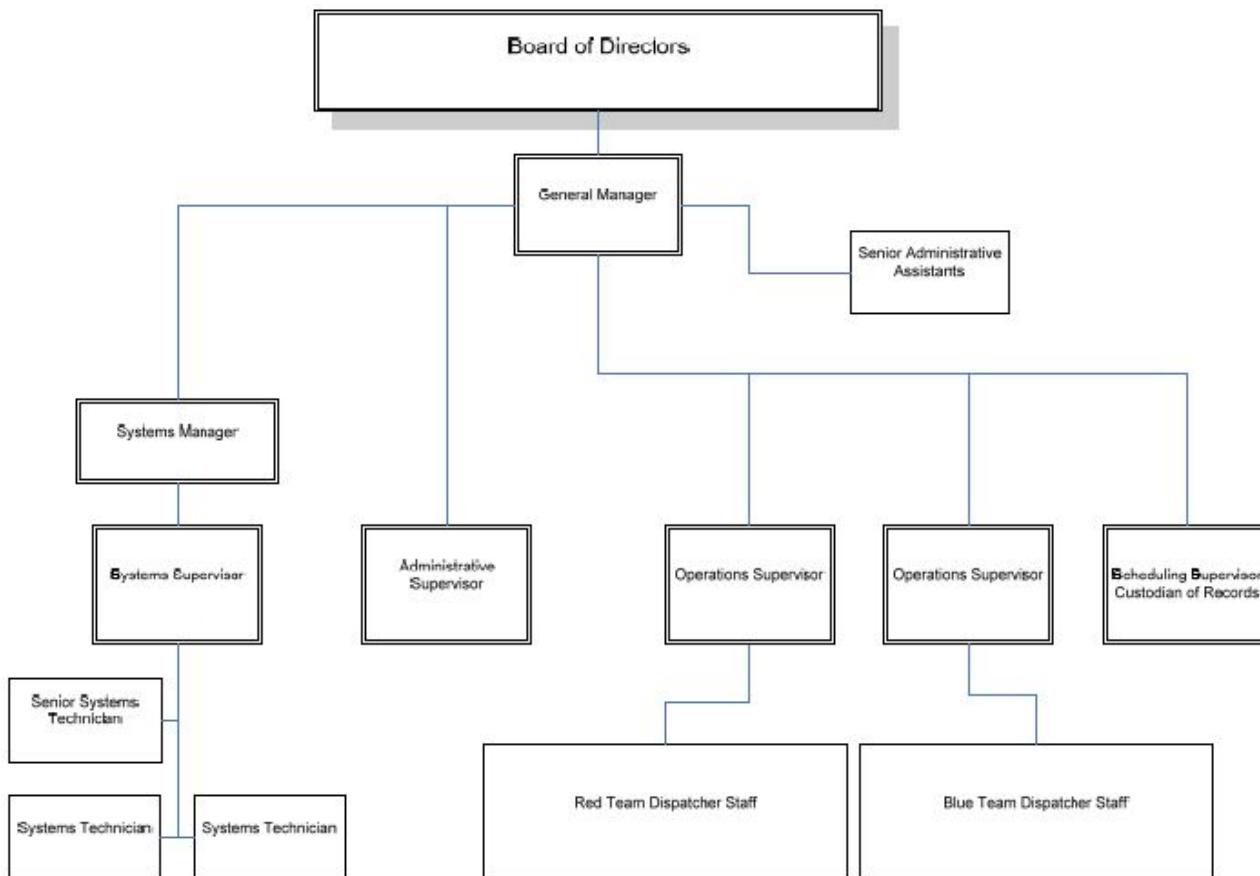


Figure 1. Santa Cruz Regional 9-1-1 2012 Organizational Chart<sup>52</sup>

52 Santa Cruz Regional 9-1-1, *Santa Cruz Regional 9-1-1: 2012 Annual Report*, (Santa Cruz, CA: Santa Cruz Regional 9-1-1, 2013), 3, <http://www.scr911.org/downloads/files/2012report.pdf>.

Dispatchers provide 24-hour coverage that is based upon workload, with some shifts staffed more heavily than others. The dispatch staffing structure includes both 10-hour and 12-hour work periods or “shifts,” divided into two teams of personnel: the Red Team and Blue Team. The Red Team works Sunday through Wednesday and the Blue Team works Wednesday through Saturday. Wednesday is an “overlap” day when both teams are scheduled to work. The added staffing on this day allows for regular training and other administrative work. This shift structure closely matches that of all law agencies SCR911 serves, which provides some level of consistency across jurisdictional boundaries. Table 3 presents the basic minimum staffing targets for SCR911’s personnel deployment (dispatchers only). In addition, SCR911 maintains at least one call-taker on duty.

Table 3. SCR911 Dispatcher Staffing Deployment Targets<sup>53</sup>

SCR911 - Dispatcher Minimum Staffing Guidelines												
Summer Weekends: Friday - Saturday (Memorial Day Weekend until Mid Sept)												
Hours	0600	0800	0900	1000	1100	1400	1900	2300	2400	0100	0200	0300
Dispatcher	5	6	7	9	10	11	10	9	8	7	6	5
Summer Weekends: Sunday (Memorial Day Weekend until Mid Sept)												
Hours	0600	0800	0900	1000	1400	1900	2100	2400	0100	0200	0300	
Dispatcher	5	6	8	10	11	10	9	8	7	6	5	
All Year (Except Summer as Above) Sunday - Wednesday												
Hours	0600	0800	0900	1000	2000	2100	2400	0200	0300			
Dispatcher	5	6	8	10	9	8	7	6	5			
All Year (Except Summer as Above) Thursday - Saturday												
Hours	0600	0800	0900	1000	1100	2000	2300	2400	0200	0300		
Dispatcher	5	6	7	9	10	9	8	7	6	5		

## B. BUDGET / EFFICIENCY

A primary question asked of SCR911 General Manager Dennis Kidd was whether the consolidation of separate 9-1-1 centers into the single SCR911 Public Safety Answering Point (PSAP) resulted in cost savings and improved efficiency. His exact response was, “Absolutely, yes.”

<sup>53</sup> Dennis Kidd, email message to author, January 13, 2014.

It is difficult to determine exact dollar amounts of cost savings or increases due to inconsistent variables that existed between the founding agencies before consolidation. For example, each pre-consolidation 9-1-1 center had varying levels of cost associated with personnel pay and benefits, 9-1-1 call volume, facilities and maintenance. Some performed ancillary duties outside of the core 9-1-1 dispatch function, which were not carried over to SCR911. However, some generalized and objective cost comparisons can be made.

When asked how a 9-1-1 center becomes “most efficient,” SCR911 General Manager Dennis Kidd stated, “You do that by only having personnel on duty when you need them.”<sup>54</sup> Being that personnel costs are the most substantial cost for any 9-1-1 center, the number of personnel required to be on duty at any given time in order to provide effective 9-1-1 dispatch services for the service area is a strong measure of overall cost efficiency. For the SCR911 service area, that number was significantly less post-consolidation.

SCR911 dispatcher staffing ranges from 10 during peak hours down to only 5 during the slowest hours. Prior to the SCR911 consolidation, the total number of dispatchers on duty at *all* hours of the day and night was 10–13.<sup>55</sup> This was the case because, regardless of actual emergency call volume, a minimum number of dispatchers must be present in each 9-1-1 Center to answer emergency calls that might come. Overall, SCR911 staffing is approximately 60 percent less than the combined staff of the pre-consolidation 9-1-1 centers.<sup>56</sup> The SCR911 consolidation therefore reduced the overall number of dispatchers required to handle the regional emergency call volume, indicating a corresponding reduction in personnel costs. As well, each pre-consolidation 9-1-1 center required varying levels of administrative personnel—managers, supervisors, administrative support personnel. By merging these separate organizations, administrative staffing levels decreased. Notably, the executive

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<sup>54</sup> Kidd, interview.

<sup>55</sup> Ibid.

<sup>56</sup> Ibid.

managers of the pre-consolidation 9-1-1 centers were sworn law enforcement or fire service officers. This costly, sworn 9-1-1 center management has now been reduced to a single, less-costly non-sworn SCR911 manager through consolidation. Through its “civilianization” of 9-1-1 center executive leadership, SCR911 has both reduced the cost of administration and installed a more narrowly focused, specialized and experienced executive leader. For the Santa Cruz County region, this appears to be a more cost efficient and effective model of organizational design.

One qualitative measure of improved efficiency related to the SCR911 consolidation is its continued growth and buy-in from regional public safety agencies. As mentioned, SCR911 originally comprised only its four “member” agencies.<sup>57</sup> The successful addition of numerous user agencies since its inception indicates a level of improved efficiency and effectiveness by SCR911. Agencies have “outsourced” their 9-1-1 dispatch services to SCR911 because it provides at least the same level of service for a lower cost than these agencies can provide independently. This continued growth also indicates SCR911 has not yet “outgrown” its ability to operate more efficiently than a smaller, independent 9-1-1 Center. In other words, this consolidated organization has not become so large, unwieldy, or unmanageable that its mere size creates a paradoxical effect upon economies of scale - negatively impacting efficiency.

Several agencies have turned to SCR911 for ancillary services as well. One example involves the police departments of the cities of Santa Cruz, Capitola, and Watsonville. They now share the cost of a modern police records management system (RMS), fully managed and operated by SCR911. SCR911 also now provides a regional mobile (in-car) data computer system shared by these law agencies, something none had pre-consolidation. While some additional services fit well into the SCR911 shared-cost model, not all ancillary

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<sup>57</sup> SCR911 defines “member agencies” as the four founding jurisdictions that now own the JPA and make up the governing board. Agencies contracting with SCR911 for service are referred to as “user agencies.”

“support” functions can be adopted and managed more efficiently. For example, member law agencies explored the possibility of contracting all police records management functions with SCR911. This idea was ultimately abandoned due to the nature of duties performed by records personnel within the individual agencies. All performed additional customer service functions that required them to remain physically on-site, such as walk-in customer service and internal administrative support.

Actual cost saving associated with the SCR911 consolidation model is evidenced by the significant savings enjoyed by the county of San Benito immediately upon entering into a contract for 9-1-1 dispatch services. Table 4 shows San Benito County’s budgeted expenditures for 9-1-1 communications for the three most recent fiscal years. For fiscal year (FY) 2010–2011, prior to contracting for services, 9-1-1 communications center personnel costs for the county totaled \$1,385,346. These costs dropped to \$919,906 in FY11/12, which included the first partial year of the contract with SCR911. The costs dropped to \$499,311 for FY12/13. This represents a 64% cost reduction.

Table 4. San Benito County Budget: 911 Communications Center<sup>58</sup>

<i>Expenditure Object Detail</i>	<i>Actual 2010–2011</i>	<i>Actual 2011–2012</i>	<i>Adopted 2012–2013</i>
<b>Salaries &amp; Benefits</b>			
Salaries	883,801	307,358	-
Temp. Salaries	-	28,815	33,561
Overtime Wages	70,922	40,803	-
FICA/Medicare	70,250	29,852	2,567
Group Insurance	96,738	26,093	-
Unemployment Insurance	1,624	22,421	9,000
Workers Comp	13,248	4,209	-
PERS Retirement	161,548	47,503	-
OPEB Charges	87,215	21,325	-
Salary and Benefit Savings	-	-	10,000
<b>Subtotal</b>	<b>1,385,346</b>	<b>528,379</b>	<b>55,128</b>
SCR911 Services	-	391,527	444,183
<b>Total Expenditures</b>	<b>1,385,346</b>	<b>919,906</b>	<b>499,311</b>

Another metric commonly used to measure costs of 9-1-1 dispatch services is the cost per 9-1-1 emergency call. Here again, this figure is often difficult to compare equitably across 9-1-1 centers, because each is unique and has differing variables built into overall costs. For example, as a stand-alone agency, SCR911 must pay for utilities, landscaping, cleaning and maintenance—all costs included within its total budget. 9-1-1 centers that belong to an individual local government may have some or all of these costs paid by another department.

58 “County of San Benito California: Adopted Budget for Fiscal Year 2012–2013.”

The simplest calculation for determining cost per 9-1-1 emergency call is to divide the entire 9-1-1 center budget by the number of emergency calls it answers each year. For SCR911, that amount is approximately \$5.80 per call. However, this simple cost figure is not used to determine the cost charged to each agency. A more complex formula has been developed, incorporating numbers of both telephone transactions and dispatch incidents, to more accurately charge each agency according to the workload associated with their specific jurisdiction. Based upon this formula, the average cost for the four member agencies is approximately \$8 per call, and the per-call cost for user agencies ranges from \$13 to \$22. Table 5 presents the SCR911 per-incident cost formulations for 2012.

Table 5. 2012 SCR911 Cost Formulations<sup>59</sup>

SCR911 Costs per Call - 2012					
	Costs	Calls for Service	Cost per dispatch	Assume 1.76 calls per CFS	Cost per telephone call
Aptos	\$ 60,730.00	2328	\$ 26.09	4097.28	\$ 14.82
Ben Lomond	\$ 9,413.00	343	\$ 27.44	603.68	\$ 15.59
Boulder Creek	\$ 18,768.00	715	\$ 26.25	1258.4	\$ 14.91
B40	\$ 4,650.00	127	\$ 36.61	223.52	\$ 20.80
Central	\$ 122,673.00	4202	\$ 29.19	7395.52	\$ 16.59
Felton	\$ 15,528.00	581	\$ 26.73	1022.56	\$ 15.19
Scotts Valley	\$ 43,709.00	1646	\$ 26.55	2896.96	\$ 15.09
Zayante	\$ 6,256.00	161	\$ 38.86	283.36	\$ 22.08
AMR	\$ 457,944.00	19631	\$ 23.33	34550.56	\$ 13.25
Santa Cruz	\$ 1,223,640.00	109254	\$ 11.20	192287.04	\$ 6.36
County	\$ 1,351,369.00	96121	\$ 14.06	169172.96	\$ 7.99
Capitola	\$ 395,848.00	19551	\$ 20.25	34409.76	\$ 11.50
Watsonville	\$ 811,987.00	65015	\$ 12.49	114426.4	\$ 7.10
<b>TOTAL</b>	<b>\$ 4,522,515.00</b>	<b>319,675</b>	<b>\$ 14.15</b>	<b>562628</b>	<b>\$ 8.04</b>

<sup>59</sup> Dennis Kidd, email message to author, December 20, 2013.

Although user agencies pay a higher per-call cost, their overall cost for services remains low as compared to the cost of operating their own 9-1-1 center. For example, the combined cost paid by all 11 fire districts to SCR911 is approximately \$300,000. This represents only .9% of their combined agency budgets.

### **C. LEVEL OF SERVICE**

The general effect of PSAP amalgamation upon service levels to both internal and external customers was explored. Specifically, the SCR911 General Manager was asked about the effect upon response times, quality of communications with field units, coordination of resources, and the satisfaction levels of member and user agencies. As well, a review of available quantitative quality of service measures was conducted.

#### **1. Customer Service**

General Manager Kidd explained that the amalgamation of many 9-1-1 centers into the SCR911 JPA has changed the view of who their “customers” actually are. Independent 9-1-1 centers often define their primary customer as the citizens of the community which the agency serves. SCR911 management and staff still care about the public and strive to provide them with the best customer service possible, however they no longer view the public as their primary customer. As an agency focused solely on providing a specific type of public safety services to multiple public safety agencies, SCR911 now considers their member and user agencies as their primary customers.

Because of that perspective and focus, the level of service provided to the public safety agencies became the top priority and has, therefore, naturally improved. Of course, part of making our primary customers happy also means serving the public exceedingly well.<sup>60</sup>

From the member/user agencies’ perspective, they enjoy the benefit of no longer having the burden of managing a 9-1-1 center. The pre-consolidation 9-1-

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60 Kidd, interview.

1 centers, as is typical throughout the industry, placed a sworn police commander at the helm—in charge of a fully civilianized, IT-heavy, mostly non-law enforcement function, of which (s)he knows virtually nothing about. Compounding the issue, these sworn commanders were rotated through various command assignments every two to three years, allowing none the time to develop real expertise in 9-1-1 center administration. “This stifled progressive development of the organization and was terribly inefficient in most cases.”<sup>61</sup>

For SCR911, the term “response time” refers to the amount of time between the receipt of a 9-1-1 emergency call and the time field units are dispatched. In life and death situations, seconds matter and therefore response times can be critical. In Santa Cruz and San Benito counties, as is the case throughout California, law agencies were the “primary” PSAP prior to the creation of SCR911; all 9-1-1 calls were routed to the individual law enforcement 9-1-1 centers. The fire agencies operated individual “secondary” PSAPs, housed in a completely separate facility. So, when a 9-1-1 call involved a medical emergency it was answered and screened first by the law agency then manually routed to the secondary Fire agency PSAP. This rerouting of emergency calls consumes precious seconds of response time, which increases the time between a citizen’s call for help and the on-scene administration of life saving emergency medical care. SCR911 is the single PSAP for all member and user agencies, both law and fire, so there is no rerouting of emergency calls required. In this sense, SCR911 has improved the fire/EMS response times.

Besides call routing time saved through having only a single PSAP, the mere fact that the 9-1-1 call is answered by a call-taker sitting only a few feet from the radio dispatcher saves additional time. The radio dispatcher hears the call-taker answering and immediately alerts the appropriate Fire agency both over the radio and by sending an audible tone alert to the fire station. General Manger Dennis Kidd estimated the (1) combination of the elimination of call

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61 Ibid.

routing to secondary PSAP and (2) consolidation of personnel into the same physical space has reduced emergency Fire call response times by 20–30 seconds. In this way, the amalgamation of multiple agencies' PSAPs into the single SCR911 organization provides quicker response times for the Fire discipline.

SCR911 has also developed a Quality Unit focused on overall quality assurance and improvement:

The Quality Unit is responsible for quantifying the Authority's performance by facilitating performance data analysis to determine equipment, procedural, and training needs; designing and proctoring the annual customer service satisfaction survey; guiding, staffing, and measuring the Authority's participative Task Team processes; maintaining the Authority's accreditation efforts; and coordinating the development, approval, and distribution of the Authority's policies and procedures.<sup>62</sup>

A component of the Quality Unit involves administering customer service satisfaction surveys, which run on a three year cycle. Each year, these surveys focus on one of three stakeholder groups: internal—SCR911 employees; external—member and user agency personnel; and the community. However, in an effort to measure the potential quality-of-service impacts associated with the recent assumption of 9-1-1 dispatch services for San Benito County and the city of Hollister, the Quality Unit conducted two surveys in 2012—surveys of both the community and the external user agencies. Results of these two surveys therefore may provide some indication of whether PSAP consolidation positively or negatively affects quality of service. However, it must be noted that the community surveys involve a low sampling rate; and the same respondents are not involved from one survey year to the next.

The 2012 Users Survey obtained data from 98 respondents.<sup>63</sup> Respondents represented the full spectrum of user agency personnel: line level

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62 Santa Cruz Regional 9-1-1, 2012 Annual Report, 12.

63 Ibid., 31–37.

first responders, first line supervisors, and managers. Forty-five percent of respondents were primary users—line level police officers and firefighters. Respondents were asked to grade the quality of various SCR911 service components, using a grading scale of “A, B, C, D, F,” with “A” being the highest and “F” being the lowest. 85% of respondents graded the overall performance of SCR911 dispatchers as either “A” or “B,” indicating a high satisfaction level. However, this was 10% lower than the previous year’s result. The comparable 2011 Users Survey showed 95% of respondents grading overall satisfaction as either “A” or “B.”<sup>64</sup>

The 2012 Community Survey obtained data from 50 respondents, a low representative sample.<sup>65</sup> Respondents were all community members who had called SCR911 for some sort of emergency. Ninety-eight percent of respondents indicated the competence level of the dispatcher they spoke with as either “expert” or “capable.” Ninety-four percent indicated the dispatcher’s attitude was either “caring” or “polite.” Regarding overall satisfaction with the customer service provided, 87% described the experience as either “exceeded expectations” or “satisfied.” These survey results indicate a very high level of satisfaction with SCR911 service by the community, which was consistent with previous survey results. The last Community Survey was conducted in 2009 and involved 90 respondents.<sup>66</sup> Ninety-five percent of those responded with favorable overall customer service ratings.

Another function of the Quality Unit is to monitor and maintain standards for training, policies and procedures, emergency preparedness, and quality of service required for certification/accreditation by professional organizations. SCR911 attained accreditation for its law 9-1-1 call-taking and dispatch

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<sup>64</sup> Santa Cruz Regional 9-1-1, *Santa Cruz Regional 9-1-1, 2011 Annual Report* (Santa Cruz, CA: Santa Cruz Regional 9-1-1, 2012) 28, 31–49, <http://www.scr911.org/downloads/files/2011report.pdf>.

<sup>65</sup> Santa Cruz Regional 9-1-1, *2012 Annual Report*, 38–39.

<sup>66</sup> Santa Cruz Regional 9-1-1, *2009 Annual Report* (Santa Cruz, CA: Santa Cruz Regional 9-1-1, 2010), 36–37, <http://www.scr911.org/downloads/files/Annual%20Report%202009.pdf>.

operations through the Commission on Accreditation for Law Enforcement Agencies (CALEA) in 2004 and again in 2010. SCR911 is currently the only CLAEA accredited 9-1-1 Center in California.<sup>67</sup>

CALEA is recognized as an industry leader for the development and certification of standards for law enforcement services. It was created in 1979 as a credentialing authority through the joint efforts of several major law enforcement executive associations: International Association of Chiefs of Police, National Organization of Black Law Enforcement Executives, National Sheriff's Association, and the Police Executive Research Forum.<sup>68</sup> CALEA certifies law enforcement 9-1-1 centers through its Public Safety Communications Accreditation program. The purported benefits of accreditation are listed here.

- CALEA Accreditation requires the communications center or unit to develop a comprehensive, well thought out uniform set of written directives. This is one of the most successful methods for reaching administrative and operational goals, while also providing direction to personnel.
- CALEA Accreditation standards provide the necessary reports and analyses a CEO needs to make fact-based, informed management decisions.
- CALEA Accreditation requires a preparedness program be put in place—so a communications center is ready to address natural or man-made unusual occurrences.
- CALEA Accreditation is a means for developing or improving upon a communications center's relationship with the community or the agencies it services.
- CALEA Accreditation strengthens an agency's accountability, both within the agency and the community, through a continuum of standards that clearly define authority, performance, and responsibilities.
- Being CALEA Accredited can limit a communications center's liability and risk exposure because it demonstrates that internationally recognized standards for public safety

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<sup>67</sup> "SCR911 Accreditation," Santa Cruz Regional 9-1-1, accessed January 13, 2014, <http://www.scr911.org/about/accreditation.html>.

<sup>68</sup> "The Commission," CALEA, accessed November 24, 2013, <http://www.calea.org/content/commission>.

communications have been met, as verified by a team of independent outside CALEA-trained assessors.

- CALEA Accreditation facilitates an agency's pursuit of professional excellence.<sup>69</sup>

None of the original pre-consolidation 9-1-1 centers is known to have had dedicated staff for quality assurance, attained accreditation(s), nor conducted customer service surveys. Therefore, at a minimum, the economies of scale with regard to personnel hours and the focused leadership achieved through the SCR911 consolidation have allowed for a consistent focus on quality-of-service assurance and improvement. Based upon these measures, Kidd believes SCR911 has both reduced costs *and* improved quality-of-service.

## **2. Agency-Specific Issues—Local Control**

An area explored for this case study was how unique, agency-specific service issues are addressed within the consolidated 9-1-1 center model. Agency-specific issues include community and individual agency operational expectations that SCR911 is required address differently between its member and user agencies. The intent here is to identify how SCR911 has managed the level of jurisdictional “local control” over its internal operational standards and procedures.

SCR911 strives to avoid and discourage the adoption of agency specific operational controls and personnel management through its governance structure. This includes the development of standardized operational policy through its Users Committee and discipline-specific Task Teams. Governance structure is discussed in more detail in Section E of this chapter. Agency-specific controls are primarily left to the individual agencies to manage and enforce. For example, if a specific law agency requires that only two patrol units may engage in a high-speed pursuit, it is up to that agency's field supervisor(s) to enforce that policy as a pursuit begins and develops. In this example, SCR911 would remain

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<sup>69</sup> “Public Safety Communications Accreditation,” CALEA, accessed November 24, 2013., <http://www.calea.org/content/public-safety-communications-accreditation>.

focused on managing the radio traffic and respond to the requests and direction of the field supervisor accordingly.

While the standardization of 9-1-1 center procedures across all user agencies would seem to be the epitome of efficiency and is a goal of 9-1-1 center consolidation, the reality of differing agency expectations cannot be ignored. While governance structure has allowed SCR911 to generally standardize operations, some unique, agency-specific policies do remain. Those policies are difficult to change because the practices are deeply tied to an agency's long-established culture. Agency-specific policies may not be most efficient for SCR911 internally; however, imposing the desired change(s) may be so disruptive to the affected public safety agency that it outweighs the purported benefits to SCR911. As General Manager Kidd described, "We are not going to be able to change a culture that has developed over a 100 years; so, in some cases, we are just going to have to adapt and accept it."<sup>70</sup>

A classic example of a non-standardized, agency-specific practice that is deeply connected to an agency's culture is the format of their "call signs," or radio identifiers. These are short verbal identifiers, often containing only a few alpha-numeric characters, which each field unit uses to identify him or herself over the radio. Often, the particular format of these identifiers provides valuable implicit information, such as the unit's assigned geographic area and working hours (shift). For example, one law agency uses an identifier based upon shift then beat, such as "2-1" for Second Watch (shift), Beat 2 (area); while another agency simply uses their individual badge numbers, giving no indication of where or when they work. The differences sometimes correlate to an agency's culture of how units are expected to be dispatched. One SCR911 law agency has a much more geographically based, "beat-centric" culture than another. In other words, dispatchers are expected to recognize that only the geographically-assigned officer(s) should handle a call-for-service in that specific beat; whereas, in

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<sup>70</sup> Kidd, interview.

another jurisdiction, the law agency prefers to send any available unit regardless of beat assignment. SCR911 has been unsuccessful at convincing its member and user agencies to convert their call signs over to a regional standard. Only training and experience allows dispatchers to become familiar with the various call sign formats, and the underlying cultural meaning, for each agency. For this reason, SCR911 requires new dispatchers to be certified on only two out of the five law channels (each law agency operates on its own radio channel) to satisfy their probationary training requirements. They learn the idiosyncrasies of the remaining channels as they gain more experience as permanent employees.

When an agency-specific policy is adopted, the first approach is to completely remove the impact to the dispatcher through the use of technology, if possible. For example, one law agency requested that officers not be advised of 9-1-1 hang-ups from payphones.<sup>71</sup> This request was unique, as all other law agencies require these advisements. SCR911 was able to handle this unique request by designing their computer aided dispatch (CAD) software to automatically “close” these incidents without routing them to the dispatcher work stations. The call-takers answer these 9-1-1 calls and enter them into the CAD system for possible dispatch just as they do for all 9-1-1 hang-ups, but the incident is automatically closed and never routed for dispatching.

When an agency-specific operational control cannot be completely mitigated through technology, it must be codified in SCR911 policy manuals and managed through training and regular reminders to staff. SCR911 has an electronic message board “ticker” at the front of the dispatch room that scrolls through recent policy changes and training material to help remind dispatchers of recent policy changes and unique agency-specific procedures.

Geography is another aspect that sets jurisdictions apart. Each jurisdiction comprises its own set of streets, bridges, hills, residential areas, and business

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<sup>71</sup> A 9-1-1 hang-up is a call made to 9-1-1 that is terminated by the caller either before or immediately upon being answered by a SCR911 call-taker. Such calls are often false and a nuisance for first responder agencies.

districts. The challenge of dispatching public safety personnel throughout terrain that is unique and unfamiliar to the SCR911 dispatcher has been overcome with advanced mapping technology. SCR911 maintains current databases for addresses, which includes common names of businesses, and has state-of-the-art geographic information systems (GIS) mapping. These, coupled with an advanced CAD system, provide instant access to location information. One of the primary concerns voiced as San Benito County considered outsourcing 9-1-1 dispatch services to SCR911 was that the new dispatchers would not “know the area” and therefore be unable to provide the level of service to which the community was accustomed. This proved to be a non-issue because of SCR911’s GIS and CAD systems.

There have also been instances involving employee performance issues where a user agency supervisor or manager believes they have authority to influence how those personnel matters will be handled. This is not the case. As an independent agency, all SCR911 personnel matters must be addressed internally and confidentially by SCR911 management. As well, user agency supervisors at times will attempt to direct SCR911 supervisors to provide a certain level of staffing for a planned event. User agencies do not have authority to set SCR911 staffing levels. Instead, users are asked to simply present their dispatch needs and allow SCR911 management to determine the appropriate level of staffing to handle the anticipated workload. On the other end of the spectrum, user agencies sometimes fail to advise SCR911 altogether of planned events (enforcement missions, training operations, etc.) that significantly impact staffing needs.

#### **D. INTEROPERABILITY**

The effects of the SCR911 amalgamation of 9-1-1 centers upon communications interoperability were discussed, including both voice radio communications and data sharing. Interoperability has been defined as:

the ability of public safety service and support providers—law enforcement, firefighters, EMS, emergency management, the public utilities, transportation, and others—to communicate with staff from other responding agencies, to exchange voice and/or data communication on demand and in real time.<sup>72</sup>

The consolidation of previously separate 9-1-1 centers within Santa Cruz County did not include a corresponding consolidation of radio channels; each user agency generally still operates on its own radio channel, staffed by a dispatcher. Therefore, SCR911 has not achieved complete voice radio interoperability across all user agencies. However, soon after consolidation occurred, SCR911 successfully merged the member fire agencies and the regional EMS ambulance provider, American Medical Response, onto a single radio channel. Each had previously operated on separate channels while at the same time responding to the same emergency incidents. They now communicate directly, in real time, to coordinate overall fire/EMS emergency response and resources. Actual voice radio interoperability between these two disciplines now exists and can be attributed to the amalgamation of area 9-1-1 centers.

Data communications interoperability was greatly improved as an effect of the SCR911 consolidation. Prior to the formation of SCR911, none of the participating agencies had mobile data computers (MDC) in their police or fire vehicles, and none of their 9-1-1 centers had a CAD system. SCR911 made those new technologies economically feasible; and the systems were purchased and implemented soon after its formation. Later, because of the successful resource sharing model SCR911 had demonstrated, three of its member law agencies turned to SCR911 for the purchase and administration of a shared records management system (RMS). Santa Cruz Police Department, Watsonville Police Department, and Capitola Police Department funded a separate, dedicated RMS budget through SCR911 to create the Santa Cruz Metro Records System. This shared RMS provides the agencies a common platform for

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<sup>72</sup> "Why Can't We Talk?: Working Together To Bridge the Communications Gap To Save Lives," National Task Force on Interoperability, accessed October 16, 2013, [http://www.cops.usdoj.gov/html/cd\\_rom/tech\\_docs/pubs/WhycantwetalkNTFIGuide.pdf](http://www.cops.usdoj.gov/html/cd_rom/tech_docs/pubs/WhycantwetalkNTFIGuide.pdf).

managing and sharing data in real time. For example, when an offender is arrested by the Santa Cruz Police Department, his or her arrest data is accessible by the Capitola Police Department. SCR911 has now successfully administered this system for several years and is in the process of a major system upgrade, using SCR911 in-house IT staff. In this sense, SCR911 has expanded its core function to include some level of IT support for the member agencies.

Because of SCR911, all user agencies have access to a modern, powerful CAD and MDC system, and three member law agencies share an RMS that improves data interoperability. Together, these systems have greatly enhanced the ability of all member agencies to communicate data.

## **E. GOVERNANCE**

SCR911, which was first named Santa Cruz Consolidated Emergency Communications Center, was established on July 1, 1991. It is an independent government agency, known as a Joint Powers Authority (JPA), governed and funded by its four founding member agencies: the county of Santa Cruz, and cities of Santa Cruz, Watsonville, and Capitola.<sup>73</sup> The executive managers of these jurisdictions comprise the SCR911 Board of Directors. This four-member board establishes and approves the SCR911 annual budget, and approves certain fiscal and personnel policies. However, the board has no input or control over SCR911 operations. This is preferred, from General Manager Kidd's perspective.

Only high-level, top County and City executives approve budget matters, while police and fire chiefs approve operations. I do not have a police chief disputing the budget because he dislikes the way the Center is being run; nor do I have a city manager—far removed from public safety operations—directing our 9-1-1 dispatch operations. The Board does not micro-manage operations

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<sup>73</sup> "Communications Administrative Policy/Procedure: Statutory Authority for Establishment" Santa Cruz Consolidated Emergency Communications Center, accessed January 20, 2013, <http://www.scr911.org/policies/200/210.pdf>.

at all. They approve the budget and empower me to manage operations.<sup>74</sup>

Operational policies are approved by the SCR911 User Committees, which consist of the police and fire chiefs of the member/user agencies. Below the User Committees are two discipline-specific Task Teams: Fire/EMS Task Team and Law Task Team. The Task Teams are working groups composed of line level supervisors and mid-managers. These teams do the hands-on policy development work, submitting their final product to the User Committees for approval and adoption. This overall governance structure establishes compartmentalized areas of expertise and authority, keeping everyone focused within their own scope.

“The Board cares about the budget and personnel rules; Users care about operational policies. The Task Teams are actually developing those policies because they have firsthand knowledge and will be responsible for implementing them on a daily basis.”<sup>75</sup> Through the User Committees and Task Teams, SCR911 strives to achieve uniform agreement across agencies and incorporate “local control” into Center operations.

## **F. ORGANIZATIONAL BEHAVIOR**

With the JPA model, there are two general approaches toward employee relations once a consolidation effort is underway. One approach is based solely upon the cost-savings motivation. This approach puts existing employees on notice that their jobs are not guaranteed post-consolidation; that everyone is encouraged to apply for the new positions being created under the JPA, but fewer employees will be necessary and not all will be hired. The second approach is founded more upon the improved service level motivation of consolidation. With this approach, *all* existing employees are offered positions within the new agency. The founding member agencies of SCR911 chose the

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<sup>74</sup> Kidd, interview.

<sup>75</sup> Ibid.

latter approach both for the original formation of the JPA, and for the recent incorporation of San Benito County 9-1-1 dispatch services.

The “grandfathering in” of existing employees saved painful layoffs and provided a more politically palatable approach for elected officials. However, this approach presented a whole new set of challenges to the organizational behavior of the new agency that was created. Because of a general lack of support for the consolidation effort by all involved employee bargaining groups, there was no employee participation or input in the initial formation of the JPA or the development of its early policies and procedures. The SCR911 consolidation was very much a “top down” initiative at the start. The first JPA employee was a general manager, who in turn hired a technical expert, followed by a support services manager, and finally the line level supervisors and dispatchers.

Employees that moved over into the JPA carried with them their existing organizational identities. Dispatchers from SCPD, for example, had long-established identities associated with the city of Santa Cruz and were comfortable with that organization’s culture and operational practices. Placing a dispatcher with a strong SCPD organizational identity at the WPD dispatch desk was often met with significant resistance. As well, many of the existing employees that transitioned into the JPA experienced pay and benefit reductions that caused them stress and frustration. The real or perceived cost savings attributed to consolidation go toward the member agencies and are lost upon employees—there is no corresponding increase in pay and benefits to employees. The overall organizational identity crisis and employee tensions presented to managers immediately upon the creation of SCR911 proved one of the most significant challenges to overcome.

Adjusting to the dramatic changes involved with transitioning from existing employers to the new JPA was stressful for employees, and many had a difficult time accepting the consolidation. Technical issues associated with brand new, unfamiliar IT systems, dispatching for a city or county an employee had never visited, learning new procedures of other jurisdictions while being pulled away

from those that employees knew instinctively; for many, the change was untenable. The resulting high employee attrition rate was unanticipated and the new agency soon faced a staffing challenge. The more politically palatable approach toward consolidation—guaranteeing jobs to existing employees—had the paradoxical effect of creating serious employee vacancy problems as large numbers soon resigned from the new agency.

The employee satisfaction and retention problems improved with the passage of time. As a new, independent agency, the JPA had much more flexible personnel hiring processes and rules than those of the pre-consolidation 9-1-1 centers. The board approved a “rule of the list” hiring process, which allowed management to hire qualified personnel regardless of their ranking on a hiring list. Any candidate that passed the initial entry examination was placed on the hiring list and could be considered for hire. The ability to select new dispatchers from anywhere on the list, as opposed to the more rigid rank-based selection process used previously, allowed SCR911 to be more selective with regard to those personnel traits that best fit the desired organizational culture. As new dispatchers were hired and inculcated into the organization, the JPA began to develop its own culture. General Manager Kidd explained:

We have, over time, developed a ‘culture of excellence.’ It took us a long time, but through this process, we have established an incredible group of people working here; people whom we have trained to become very good dispatchers. So, our culture is just phenomenal right now.

## **G. POLITICS**

The persons most responsible for leading the consolidation of regional 9-1-1 centers were the Santa Cruz County administrative officer<sup>76</sup> and the Santa Cruz city manager. These two executive managers championed the effort and

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<sup>76</sup> The county administrative officer is responsible for the preparation and supervision of the county’s budget, legislative analysis, contract and grant administration, intergovernmental relations, supervision of non-elected department heads, and oversight of all departmental functions.

drove it to fruition. However, the executive managers of the other two founding member jurisdictions, Watsonville and Capitola, also played instrumental roles in the successful creation of the JPA. These four executives, and not the public safety department heads, provided the leadership required to foster collaboration across jurisdictional boundaries and drive such significant change.

Public safety department heads generally opposed the concept of consolidation, because of the perceived loss of control they would experience. Each was comfortable having full operational control over their individual 9-1-1 centers. Perhaps the most vocal opponent was the Santa Cruz County sheriff, who campaigned against the effort and went so far as to direct deputies to initiate simultaneous vehicle stops en masse with the purpose of overwhelming the new 9-1-1 center's radio call capacity. While there was political resistance of this sort initially, it faded with time. The JPA has now been successfully operating for so many years that it has simply become the norm. No elected officials remain that know any different arrangement for 9-1-1 center operations and none have raised any concerns with SCR911 cost or performance levels.

The primary motivation behind the consolidation effort for local government executives was the potential cost savings. Emergency communications and inter-agency coordination problems that became apparent during the response to the Loma Prieta earthquake in 1989 was a secondary driver, with emergency communications center consolidation viewed as a positive step toward improved public safety response to large scale disasters.<sup>77</sup>

## **H. OTHER CONSIDERATIONS**

When asked what other models of 9-1-1 center consolidation exist, General Manager Kidd referred to the "contract services model." Under this

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<sup>77</sup> The Loma Prieta earthquake centered in the Santa Cruz (CA) Mountains in the forest of Nisene Marks State Park, about 16 kilometers northeast of Santa Cruz and about 7 kilometers south of Loma Prieta Mountains. This major, 6.9 magnitude earthquake caused 63 deaths, 3,757 injuries, and an estimated \$6 billion in property damage. It was the largest earthquake to occur on the San Andreas Fault since the great San Francisco earthquake in April 1906.

model, one existing PSAP takes on 9-1-1 Dispatch services for one or more other PSAP in the region. This most commonly involves a county agency providing services to smaller cities and fire districts. One nearby example is the Monterey County (CA) Emergency Communications Center.<sup>78</sup> Completely owned and operated by Monterey County, this 9-1-1 center provides all police, fire, and medical 9-1-1 dispatch services for the unincorporated area and all cities within Monterey County. However, the largest city, Salinas, has expressed interest in forming an independent 9-1-1 center through under the JPA model in an effort to gain more influence and control over 9-1-1 center costs and operations. While a JPA is not required for the successful governance of a consolidated 9-1-1 Center, in this instance Salinas apparently perceives that governance through a JPA will offer a more equitable level of local control for the member agencies.

To close the interview, General Manager Kidd was asked to succinctly summarize what he believed was the most significant benefit and the most significant challenge associated with SCR911.

### **1. Significant Benefit**

General Manager Kidd's personal assessment is that SCR911 provides better service for the member agencies than they had before the consolidation *and* it operates more efficiently: improved service, lower cost. While each purported benefit may be more beneficial than the other at any given time, SCR911 has been able to accomplish both. For example, before consolidation, no PSAP had a CAD system. In 1994, area 9-1-1 centers were still using handwritten cards for dispatching calls. The individual centers simply could not afford a modern CAD system. Through consolidation and the resulting fiscal economies of scale, SCR911 acquired a name brand, state-of-the-art system, costing each partner agency only a fraction of the overall cost. With regard to

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<sup>78</sup> "Monterey County Emergency Communications," Monterey County 911 Fire Police Medical, accessed November 8, 2013, <http://www.co.monterey.ca.us/911/mc911.htm>.

service level improvements, General Manager Kidd cited economies of scale for personnel resources. SCR911 is continually staffed by a minimum of 6 to 7 dispatchers, with more during the busier shifts. If there is a major emergency incident in any of the member jurisdictions, most, if not all, of these personnel are available to assist with the management of that incident. Before consolidation, the existing PSAP were staffed with fewer personnel and did not have additional personnel resources on hand for major emergency incidents. Therefore, SCR911 is less likely to be overwhelmed during large-scale emergency incidents. The ability to draw upon additional personnel resources and move them between jurisdictional radio dispatch channels is a great benefit to all of the user agencies.

## **2. Significant Challenge**

From his years of experience, General Manager Kidd feels that the most significant challenge created by the SCR911 consolidation is the lack of human, face-to-face interface with the end users (first responders). Police officers and firefighters rarely take the time to drive to SCR911 and meet the dispatchers. This lack of direct, personal interaction between users and dispatchers creates a less cohesive working environment. For example, when a police officer knows the person on the other end of the radio, he or she will likely be more understanding and courteous when addressing perceived errors or omissions. Conversely, having never met the dispatcher sometimes fosters a less-sensitive approach toward dispatch “problems;” making it easier for both the dispatcher and the user to become inconsiderate, rude, or seem uncaring.

### III. CASE STUDY—CHARLESTON COUNTY CONSOLIDATED 911 CENTER

*It's been very challenging, but the progress that we have made since 2009 is amazing—it's absolutely amazing. I can't imagine not having consolidated now.*

—Allyson Burrell, CCC911 deputy director reflecting upon the consolidation of multiple PSAP in Charleston County, South Carolina

#### A. BACKGROUND

Charleston County Consolidated 911 Center (CCC911) is a Public Safety Answering Point (PSAP) owned and operated by the County of Charleston, South Carolina. It provides 9-1-1 emergency communications services for the county and multiple local jurisdictions in the region. CCC911 was established in January 2009, after eight local jurisdictions within Charleston County approved an Intergovernmental Agreement for consolidation. Upon its completion, CCC911 consolidated 10 separate dispatch centers: five primary PSAPs, one secondary PSAP, and four dispatch-only centers.<sup>79</sup> The original participating jurisdictions are listed below.<sup>80</sup>

- County of Charleston
- City of North Charleston
- Town of Mount Pleasant
- City of Isle of Palms
- City of Folly Beach
- Saint John's Fire Department
- Saint Andrews Public Service District Fire Department

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<sup>79</sup> A “primary PSAP” is a center that receives and answers 9-1-1 calls directly. A “secondary PSAP” is a 9-1-1 center that receives 9-1-1 calls forwarded on from a primary PSAP. “Dispatch-only Centers” do not receive 9-1-1 calls, but use information forwarded from a PSAP to dispatch field units over the radio.

<sup>80</sup> “Charleston County Consolidated 911 Center—Intergovernmental Agreement,” Charleston County, accessed November 12, 2013, <http://www.charlestoncounty.org/Departments/dispatch/Intergovt%20Agreement.pdf>.

- James Island Public Service District Fire Department

With its recent (November 2013) incorporation of the city of Charleston Police Department's 9-1-1 Center, CCC911 now provides all law, fire, and EMS 9-1-1 dispatch services within Charleston County; no other independent PSAPs remain. However, the city of Folly Beach still operates a dispatch-only center for its police and fire departments.<sup>81</sup> Table 6 presents each of the 21 agencies for which CCC911 provides services.

Table 6. CCC911 Member Agencies<sup>82</sup>

CCC911—Agencies Served			
Law Agencies (6)	Fire/Rescue Agencies (14)		EMS Agencies (1)
Charleston County Sheriff	Awendaw Fire	Lincolnville Rescue	Charleston County EMS
City of Charleston Police	Charleston County Rescue	Mt. Pleasant Fire	
Isle of Palms Police	City of Charleston Fire	N. Charleston Fire	
Mt. Pleasant Police	Deweese Island Fire	Sullivan's Island Fire	
N. Charleston Police	Isle of Palms Fire	St. Andrews Fire	
Sullivan's Island Police	James Island Fire	St. John's Fire	
	Lincolnville Fire	St. Paul's Fire	

CCC911 comprises 160 employees; with 132 in operational roles and 28 in support roles. Operations positions include supervisors, call takers, law dispatchers and fire/EMS dispatchers. Support positions include the director and deputy director, managers, information technology (IT), quality assurance, training, analysts, public education, and administrative. The CCC911 staffing level has progressively increased as additional agencies joined the consolidation, since all existing PSAP personnel were incorporated into CCC911 and became county employees. The CCC911 Organizational Chart, Figure 2, provides a snapshot of the personnel deployment and organizational structure.

<sup>81</sup> This is not a PSAP, as 9-1-1 calls from this jurisdiction are answered by CCC911.

<sup>82</sup> "Charleston County Consolidated Dispatch," Charleston County, accessed November 21, 2013, <http://www.charlestoncounty.org/departments/dispatch/overview.htm>.

Charleston County Consolidated 9-1-1 Center  
Organizational Chart  
As of July 1, 2013

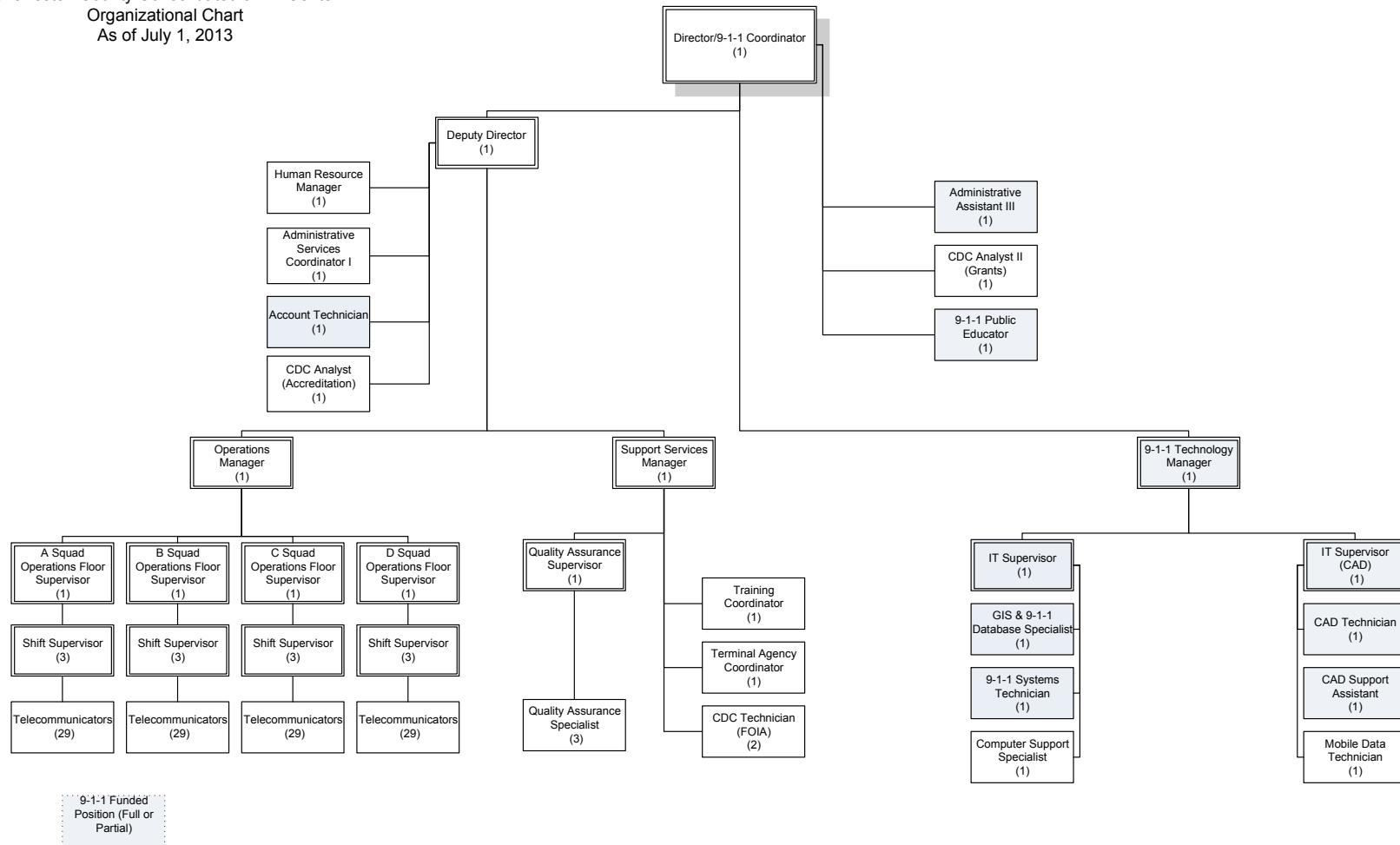


Figure 2. CCC911 Organizational Chart for Fiscal Year 2013/14

CCC911 dispatchers provide 24-hour coverage that is based upon workload, with some shifts staffed more heavily than others. The dispatch staffing structure is based upon a 12.25 hour shift schedule, with the .25 hours used for shift change briefings. Staffing is divided among four squads, with every other weekend off. At the time of this study, CCC911 was near the end of its transition to being fully consolidated, with completion planned for January 2014. Tables 7 and 8 show the personnel deployment by working hours prior to and after the final transition, respectively.

Table 7. CCC911 Personnel Deployment for 2013

<b>CCC911 Personnel Deployment 2013</b>	
<b>Hours</b>	<b>Staffing</b>
0800-1000	5 Call Takers, 17 Dispatchers & Supervisors
1000-1200	6 Call Takers, 17 Dispatchers & Supervisors
1200- 2000	7 Call Takers, 17 Dispatchers & Supervisors
2000-2200	6 Call Takers, 17 Dispatchers & Supervisors
2200-2400	5 Call Takers, 17 Dispatchers & Supervisors
2400-0800	4 Call Takers, 17 Dispatchers & Supervisors

Table 8. CCC911 Personnel Deployment for 2014

<b>CCC911 Personnel Deployment 2014</b>	
<b>Hours</b>	<b>Staffing</b>
0800-1000	9 Call Takers, 21 Dispatchers & Supervisors
1000-1200	10 Call Takers, 21 Dispatchers & Supervisors
1200-2000	12 Call Takers, 21 Dispatchers & Supervisors
2000-2200	11 Call Takers, 21 Dispatchers & Supervisors
2200-2400	10 Call Takers, 21 Dispatchers & Supervisors
2400-0800	8 Call Takers, 21 Dispatchers & Supervisors

## B. BUDGET / EFFICIENCY

A primary question asked of both Director James Lake and Deputy Director Allyson Burrell was whether consolidation of separate 9-1-1 centers results in cost savings and improved efficiency.<sup>83</sup> Director Lake explained that the amalgamation of 9-1-1 centers can save money immediately if there is an adequate, existing facility to house the expanded PSAP. If a new facility must be designed and constructed, as was the case for CCC911, it requires substantial up-front costs ranging from \$15 million to \$20 million. Another risk to cost savings is “mission creep,” or the adoption of other functions outside the original scope of the consolidation project. However, over the long term consolidations generally reduce costs through the economies of scale realized with regard to personnel and technology systems resources.

As a relatively new consolidated 9-1-1 center, CCC911 has not yet realized significant cost savings. This was anticipated, as the consolidation effort was focused almost entirely upon improving efficiency and quality-of-service and not cost reductions. 9-1-1 center consolidation within Charleston County was based upon four motives: (1) improving service, which will save lives, (2) providing the most efficient and effective emergency communications possible, (3) increasing safety to emergency responders, and (4) enhancing coordination amongst responding agencies.<sup>84</sup>

One of the quality improvement goals established for the new consolidated 9-1-1 center was to attain professional accreditations. To do so, many improvements were first needed. A few of the pre-consolidation 9-1-1 centers were providing an “accreditation level” of service. However, most were “understaffed, undertrained, and had poor facilities and outdated equipment.”<sup>85</sup>

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<sup>83</sup> Lake and Burrell, conference call.

<sup>84</sup> Charleston County, *Study Results Show Feasibility of 911 Consolidated Dispatch Center*, Charleston County, SC: Charleston County, April 11, 2007, <http://www.charlestoncounty.org/handheld/www/news/archives/2007/2791.htm>.

<sup>85</sup> Lake and Burrell, conference call.

Several of the Fire centers had no Computer Aided Dispatch (CAD) system and were dispatching by means of handwritten cards. The CCC911 consolidation process included major technological upgrades, which improved quality of service for all participating agencies. However, along with the upgraded technology came the need for enhanced IT support. Charleston County did not have the level of IT staff or expertise required to support the new technologies, which necessitated the hiring of dedicated IT staff. Director Lake noted, “We have come a long way in a short amount of time—improving quality while keeping the same price tag.”<sup>86</sup>

While enhanced services were the goal, cost savings are also anticipated in the long-term. In 2007, before the consolidation, Charleston County commissioned a study to examine the feasibility of a regional 9-1-1 center.<sup>87</sup> While the study emphasized the potential quality and service level improvements of consolidating the region’s PSAP, it also identified potential cost savings. The study recognized that cost savings may not be realized for several years after consolidation, due to “startup costs that include renovation/construction costs, capital purchases, relocation costs, training, and acclimation of employees to new systems and protocols.”<sup>88</sup> However, after these initial start-up costs, the study suggested cost savings should be realized beginning five years after full consolidation in the following areas:

- Reduction in duplication of services, systems, and support, particularly with regard to systems upgrades and/or replacements
- Operational efficiency and equality in services “through lower information and transaction costs. These costs savings are measured by convenience of performing tasks, and convenience of systems development, maintenance and upgrade/replacement.”<sup>89</sup>

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86 Ibid.

87 L. Robert Kimball & Associates, *Countywide Emergency Communications Services Consolidation Feasibility Study: Charleston County, South Carolina*. (Edinburg, PA: Kimball & Associates, April 2007).

88 Ibid., 160.

89 Ibid., 161.

An example in support of the anticipated long-term cost savings is found relative to equipment replacement and maintenance costs. Cost savings will be realized from the overall reduction in number of work stations. Prior to the CCC911 consolidation, there were 45 work stations (9-1-1 call-taker and dispatcher consoles) scattered throughout the existing PSAPs in the region. Each work station included desk furniture and computer, telephone, and radio equipment, all of which incurs cost for maintenance and support. CCC911 has only 36 workstations, an overall reduction of nine. This has reduced the overall costs associated with maintaining 9-1-1 workstations in the county, while at the same time upgrading all workstations to state-of-the-art equipment, thereby improving quality of service while reducing costs.

A 9-1-1 center's cost per transaction can be determined by dividing its overall operating budget by its total number of transactions. This is a simple metric sometimes used to evaluate costs of 9-1-1 dispatch services internally. For example, a 9-1-1 center might use this metric to track its own cost efficiency from year to year, or to develop a standard per-transaction cost formula for charging its member agencies. However, this metric may not be valid for comparing cost efficiency from one 9-1-1 center to the next, as differing variables are involved on each side of the equation. For example, some agencies consider a transaction to be an emergency 9-1-1 telephone call, while others consider it to be an emergency incident, or a dispatched "call-for-service." These two transactions are quite different, as emergency incidents might involve multiple 9-1-1 calls. For example, vehicle collisions often give rise to numerous 9-1-1 telephone calls; multiple witnesses call 9-1-1 to report the same emergency incident. Additionally, the components of an agency's operating budget can vary. For example, an independent 9-1-1 center may have to pay for facilities maintenance and dedicated IT personnel, while a city- or county-owned 9-1-1 center may not.

The detailed budget analysis required to make valid per transaction cost comparisons between CCC911 and the other two case studies conducted herein

was unavailable to this researcher. However, the metric is being provided here for reference only. CCC911's fiscal year 2012 operating budget was \$7,199,926. Dividing that figure by its total number of emergency telephone calls, 568,965, produces a per-call cost figure of \$12.65.<sup>90</sup> For fiscal year 2013, with an increased budget figure of \$7,893,068 and fewer emergency calls, the per-call cost figure rose to \$13.98.<sup>91</sup> CCC911 also calculated its cost per dispatched emergency incident; which is \$14.63.<sup>92</sup>

### **C. LEVEL OF SERVICE**

The general impacts upon service levels, for both CCC911 internal and external customers, were examined. Specifically, the CCC911 Director and Deputy Director were asked about the consolidation's effects upon training, operational standards, response times, quality of communications with field units, regional coordination of resources, and the level of satisfaction perceived by internal and external customers. They expressed that the level and quality of service has improved as a result of the CCC911 consolidation in each of the areas discussed.

Prior to consolidating the region's PSAP, the quality of 9-1-1 services being provided to citizens within Charleston County varied greatly between each local jurisdiction. Each 9-1-1 center had its own new-employee training program and continuing education standards. A few had some type of quality assurance program while others had none. Turnover of 9-1-1 center staff was also high, making it difficult for agencies to maintain minimum staffing levels. Both Director Lake and Deputy Director Burrell believe consolidation of the region's 9-1-1 staff has generally improved the quality of 9-1-1 dispatch services for the entire region, through the standardization of all training, establishment of a formal

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<sup>90</sup> James Lake (director of Charleston County Consolidated 911 Center) interview with author on "cost per call," December 31, 2014.

<sup>91</sup> Ibid.

<sup>92</sup> Lake and Burrell, conference call.

quality assurance program, equalization of pay/benefit packages, and attainment of accreditation from national standards organizations.<sup>93</sup>

CCC911 has obtained accreditation for its fire and EMS 9-1-1 call operations through the International Academies of Emergency Dispatch (IAED). IAED is a recognized authority in 9-1-1 emergency dispatch standards development and certifications, with more than 54,000 currently certified members (individuals and agencies). The organization's mission statement reads, "To advance and support the public-safety emergency telecommunications professional and ensure that citizens in need of emergency, health, and social services are matched safely, quickly, and effectively with the most appropriate resource."<sup>94</sup> Its published goals for all members are:

- To use and promote the fundamental principles of the scientific method in the pursuit of the Mission.
- To advocate a single, scientifically defensible protocol which becomes the unifying standard under which all professional emergency dispatchers practice.
- To advance professionalism within the dispatch community by establishing and promoting an ethics policy as well as minimum standards for curriculum, instruction, certification, recertification, and accreditation of centers.
- To provide opportunities for members to improve themselves and their organizations through facilitation of communication, providing comprehensive information resources and creating high-quality training and continuing dispatch education through seminars, publications, and other media designed to meet our members' needs.
- To establish and promote a collegial, research-based culture that welcomes the expertise of many disciplines through the creation of standing committees, task forces, and subgroups that reach out to other organizations and advise the Academies.

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<sup>93</sup> Ibid.

<sup>94</sup> "Organization | National Academies of Emergency Dispatch," accessed November 24, 2013, <http://www.emergencydispatch.org/Organization>.

- To be recognized as the authoritative, independent voice that represents the emergency dispatcher and enhances the profession.<sup>95</sup>

Additionally, CCC911 is in the process of obtaining accreditation for its law 9-1-1 call-taking and dispatch operations through the Commission on Accreditation for Law Enforcement Agencies (CALEA). CALEA is recognized as an industry leader for the development and certification of standards for law enforcement services. It was created in 1979 as a credentialing authority through the joint efforts of several major law enforcement executive associations: International Association of Chiefs of Police, National Organization of Black Law Enforcement Executives, National Sheriff's Association, and the Police Executive Research Forum.<sup>96</sup> CALEA certifies law enforcement 9-1-1 centers through its Public Safety Communications Accreditation program. The purported benefits of accreditation are listed here.

- CALEA Accreditation requires the communications center or unit to develop a comprehensive, well thought out uniform set of written directives. This is one of the most successful methods for reaching administrative and operational goals, while also providing direction to personnel.
- CALEA Accreditation standards provide the necessary reports and analyses a CEO needs to make fact-based, informed management decisions.
- CALEA Accreditation requires a preparedness program be put in place—so a communications center is ready to address natural or man-made unusual occurrences.
- CALEA Accreditation is a means for developing or improving upon a communications center's relationship with the community or the agencies it services.
- CALEA Accreditation strengthens an agency's accountability, both within the agency and the community, through a continuum of standards that clearly define authority, performance, and responsibilities.

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95 Ibid.

96 "The Commission," CALEA, accessed November 24, 2013, <http://www.calea.org/content/commission>.

- Being CALEA Accredited can limit a communications center's liability and risk exposure because it demonstrates that internationally recognized standards for public safety communications have been met, as verified by a team of independent outside CALEA-trained assessors.
- CALEA Accreditation facilitates an agency's pursuit of professional excellence.<sup>97</sup>

Certifications by recognized industry accreditation authorities are evidence of CCC911's state-of-the-art training and quality assurance programs. Since none of the pre-existing 9-1-1 centers in Charleston County had attained such accreditation, and their training and operational standards varied between PSAP, this is one potential qualitative indication of an improved level of service being provided by CCC911 for all of the communities it serves. Additionally, Deputy Director Burrell was employed by the county's 9-1-1 center prior to consolidation, giving her firsthand knowledge of pre- and post-consolidation quality assurance efforts. She stated, "We had one person who did quality assurance, but that was not their primary job. And, it was basically home-grown quality assurance. We didn't have anything like what the academy [IAED] provides."<sup>98</sup> The quality assurance program has increased from one that involves the part-time attention of a single employee to one based upon industry standards and involving a dedicated staff.

Director Lake and Deputy Director Burrell explained that, as a result of their quality assurance program, improved technology systems, and focus on meeting industry standards, CCC911 is exceeding national standards for the time it takes to answer 9-1-1 emergency calls. CCC911 has also significantly improved overall call processing times, approaching national standards there as well. Consequently, CCC911 is dispatching filed units more quickly. The data show that fire and EMS response times have been reduced from 10 minutes to 8 minutes since the amalgamation of 9-1-1 centers, providing one strong

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97 "Public Safety Communications Accreditation," CALEA," accessed November 24, 2013. <http://www.calea.org/content/public-safety-communications-accreditation>.

98 Lake and Burrell, conference call.

quantitative measure of improved service.<sup>99</sup> These standards were not being met, and, in most cases, were not even *possible* to be met due to staffing and technology limitations before consolidation.

With regard to internal (users) and external (community) customer satisfaction levels, Director Lake indicated they have not yet had the time or resources to conduct customer surveys. However, they intend to do so after completion of the final phases of consolidation. CCC911 was yet in the process of consolidating four additional agencies as this researcher was gathering data.

One of the primary questions asked of Director Lake and Deputy Director Burrell regarded the issue of “local control” within the consolidated environment. Namely, how are unique, agency-specific service needs managed? They indicated this can be a challenge, and is something they are currently working through with four smaller agencies that will soon transition over to CCC911. These agencies serve small communities that are accustomed to a highly personalized level of public safety services, so much so that dispatchers and community members calling 9-1-1 often already know one another. Successfully transitioning these smaller agencies into the large consolidated PSAP will require substantial involvement and input from the Consolidated Dispatch Board, which is comprised of the chiefs of each public safety agency CCC911 serves. Director Lake explained this is the core function of the Consolidated Dispatch Board—the very reason it exists. The board is representative of the entire service area, all agencies and each discipline, and seeks consensus in order to approve operational policies that all participating agencies support. In so doing, one argument is that service levels are improved throughout the entire county. While there is some give and take at the individual agency level, overall, the entire region benefits from improved, standardized levels of service.

While the Director is an employee of Charleston County, and therefore subject to the County Administrator’s direction and authority, it is important to

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<sup>99</sup> Ibid.

note the role of the Consolidated Dispatch Board with regard to the evaluation of the Director's performance. The elected chairperson of the Consolidated Dispatch Board provides the county administrator "with performance reviews of the Center Director and make[s] written recommendations regarding his or her performance...with significant input from Board members."<sup>100</sup> This provisional authority of the Consolidated Dispatch Board to provide direct feedback to the county administrator regarding the director's performance ensures a level of accountability to the Board's operational policy direction.

#### **D. INTEROPERABILITY**

The potential benefits to regional voice and data interoperability were explored as they pertain to the CCC911 consolidation. Director Lake and Deputy Director Burrell were asked if interoperability was enhanced as a result of the consolidation of regional PSAP, and, if so, in what ways. They explained that significant progress had already been made toward regional public safety voice radio interoperability prior to the consolidation effort. Charleston County had developed a shared 800 MHz voice radio system, which was a key component of South Carolina's statewide trunked radio system.<sup>101</sup> The CCC911 consolidation brought the last two remaining agencies in the county onto the countywide radio system, so that all public safety agencies now operate on the same radio system. The CCC911 consolidated PSAP was itself identified as a key strategic initiative in the Statewide Communications Interoperability Plan, as it was anticipated to enhance the public safety data sharing capabilities within the region.<sup>102</sup>

CCC911 has improved data communications interoperability in several ways. First, even before all PSAP were consolidated, CCC911 acquired and implemented a common computer aided dispatch (CAD) system throughout the

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100 "Charleston County Consolidated 911 Center—Intergovernmental Agreement."

101 "South Carolina Statewide Communications Interoperability Plan," state of South Carolina, accessed November, 24 2013.  
<http://www.sled.sc.gov/documents/HSGrants/SCIP%20rev%2028.pdf?MenuID=>.

102 Ibid.

county. 9-1-1 centers that had not yet physically transitioned into CCC911 still used the new common CAD system through virtualization. This allowed all agencies to share emergency 9-1-1 call data for the first time. Second, CCC911 moved all member agencies forward to the same mobile data computer system. Field units from different jurisdictions are equipped with in-car computers and now share and communicate data to and from the field in real time. Finally, CCC911 maintains a data sharing network that connects its member agencies with some state and federal partners as well. As Director Lake summarized,

In a very short amount of time we have made great strides toward interoperability, and that is just on the technical side. On the operational side, our Board is constantly generating new policies and procedures that standardize field operations across the county as they relate to communications.<sup>103</sup>

Additional work is underway to further enhance data interoperability through the creation of a single, shared records management system (RMS) for the partner law agencies. CCC911 has already implemented a shared RMS for its Fire and EMS partners.

Technical improvements, coupled with the operational standardization being developed by the Board, have enhanced the coordination of public safety resources. The CCC911 consolidation has had a direct positive impact upon data sharing and the ability to coordinate resources during large scale emergency incidents in Charleston County. Director Lake advised that while the countywide radio system predates the CCC911 consolidation, all other data interoperability improvements have been the direct result of consolidation and likely would not have occurred otherwise.

## **E. GOVERNANCE**

CCC911 is not an independent agency; it is one of many departments that comprise the Charleston County government organization. Its director is therefore a department head and all personnel are employees of Charleston

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<sup>103</sup> Lake and Burrell, conference call.

County. CCC911 provides 9-1-1 dispatch services for all other agencies within Charleston County through an Intergovernmental Agreement (Appendix A).<sup>104</sup> The agreement sets forth many aspects of the 9-1-1 Center's initial formation, much of it related to governance structure.

Numerous organizational objectives are set forth in the CCC911 Intergovernmental Agreement (IGA). Several speak to governance structure:

- To provide operational oversight by a Consolidated Dispatch Board made up of public safety agency leaders
- To ensure accountability to member agencies by the creation of User Groups, which provide input to the Consolidated Dispatch Board
- To provide a mechanism for the addition or withdrawal of parties to the agreement

Additionally, the IGA contains specific sections that codify the organizational structure of CCC911 in relation to Charleston County government, the responsibility to acquire and maintain a facility, the methodology to address various transitional issues, and the composition and authorities of the Consolidated Dispatch Board and User Groups. According to the IGA:

- Charleston County will establish and maintain a Department of Public Safety Communications, which will operate the Charleston County Consolidated 9-1-1 Center. The County will provide the necessary personnel, legal, risk management, and purchasing services for CCC911. Leveraging the existing County services in this manner will provide administrative cost efficiencies. The Center Director and all CCC911 employees will be County employees, subject to all County personnel policies and procedures.
- Charleston County will purchase, lease or construct a facility of adequate size to house CCC911.
- Details of all consolidation transitional issues will be addressed through the Consolidated Dispatch Board, including input as to the hiring of the Director and the transition of all existing, qualified PSAP employees.
- The Consolidated Dispatch Board will be comprised of two representatives each for Charleston County, City of North

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<sup>104</sup> "Charleston County Consolidated 911 Center—Intergovernmental Agreement."

Charleston, City of Mount Pleasant, plus one rotating representative from the remaining participating agencies. Two additional representatives will be selected by the Charleston County Fire Chiefs Association. Finally, two non-voting members will be selected, one as a liaison for the County Administrator and one to provide input from allied federal agencies.

- Two User Groups will be established to provide participating agency input into CCC911 operations: the Law Enforcement User Group and the Fire/EMS/Rescue/Emergency Management User Group. Membership will include the chief of each member agency.

In addition to the formal structures established through the IGA, Director Lake explained that smaller committees are created as needed to examine specific issues and help develop policy recommendations. For example, interagency committees were formed for some highly technical issues, personnel matters, and the design and construction of the new facility. Currently, there is a committee helping to develop a CCC911 5-year strategic plan. Director Lake emphasized, “We rely heavily upon our users to provide direction in many areas.”<sup>105</sup> This provides each agency with a level of “local control” over CCC911 operations and ensures all operational policies are thoroughly vetted for viability and general acceptance.

During early discussions on a possible consolidation of regional PSAP, governance structure was explored and subsequently outlined within the feasibility study.<sup>106</sup> The stakeholder agencies evaluated each option in three key areas when deciding upon the form of governance: support structure, organizational structure, and level of representation for participating agencies.

The new 9-1-1 center would require a “backbone structure” to support administrative services, such as payroll and other personnel related needs, facilities maintenance, budgeting and finance, legal matters, and risk management.<sup>107</sup> This support structure could be created anew within an

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<sup>105</sup> Lake and Burrell, conference call.

<sup>106</sup> L. Robert Kimball & Associates, *Countywide Emergency Communications*, 145–151.

<sup>107</sup> *Ibid.*, 145.

independent consolidated center, resulting in increased autonomy; or an existing support structure could be leveraged, which would save administrative costs. The stakeholders chose to leverage the existing Charleston County “backbone structure.” An additional component here was Charleston County’s intention to acquire the facility needed to house the new 9-1-1 center. In deciding to use the existing County support structure and occupy a County building, the new consolidated center would be primarily owned by Charleston County. Other agencies would therefore “outsource” their 9-1-1 dispatch services to the county.

With a county-administered 9-1-1 center, the options for organizational structure turned toward the formation of representative boards and committees that would provide a voice for the various jurisdictions and disciplines agreeing to participate in the consolidation effort. These included an executive board, advisory board, and steering committees. The stakeholder group further developed these recommendations into what became the Consolidated Dispatch Board and User Groups. Having chosen an organizational structure, the stakeholders then settled upon the specific representative makeup of the Consolidated Dispatch Board and User Groups. The first responsibilities of the Consolidated Dispatch Board would be to provide input to the County regarding the hiring of the CCC911 director and the development of the IGA. Figure 3 presents the general governance structure that formed through the approval of the IGA.

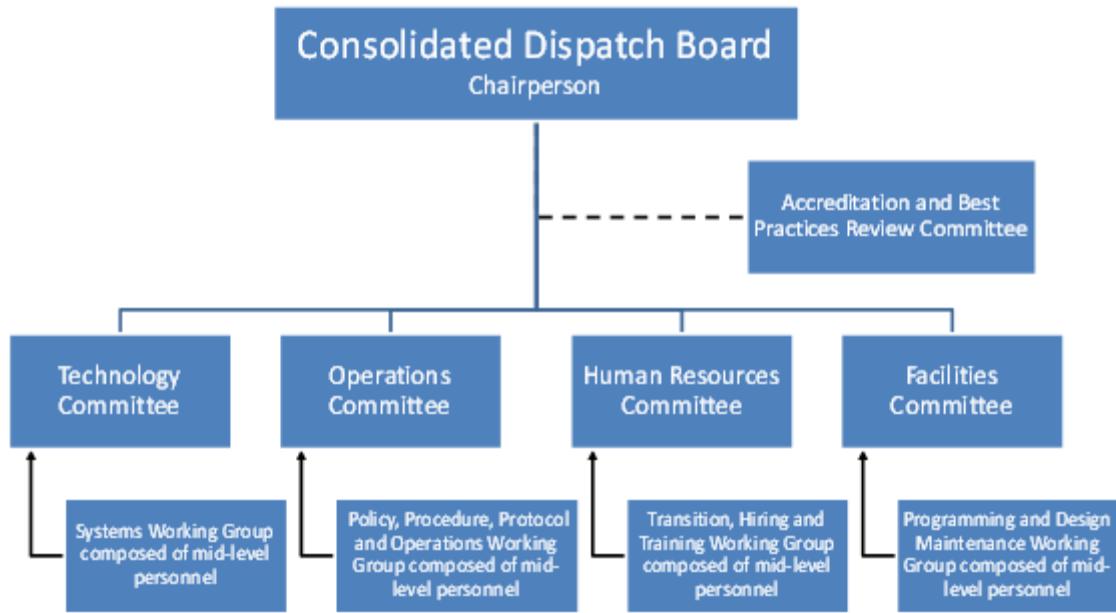


Figure 3. CCC911 Consolidated Dispatch Board

## F. ORGANIZATIONAL BEHAVIOR

Several questions were asked of Director Lake and Deputy Director Burrell to elicit information regarding any organizational behavior issues associated with the consolidation of 9-1-1 dispatch services, such as support or resistance from bargaining groups and cultural differences between disciplines. South Carolina is a “right to work” state, and there was no bargaining group formed for CCC911 employees.<sup>108</sup> Director Lake explained that the absence of an organized employee bargaining group was both beneficial and challenging to the consolidation process. The primary benefit was the ability to address transitional personnel issues, such as pay and benefits, with no organized opposition. Paradoxically, the lack of employee organizational structure that a union provides made effective management-employee communications for the numerous transitional personnel matters more challenging.

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<sup>108</sup> A “right to work” state is one that has enacted laws prohibiting employers from making union membership a condition of employment, or so-called “forced unionization.”

Deputy Director Burrell identified the merging of cultures as a notable challenge throughout the consolidation process. During the initial phase of consolidation, after the primary group of agencies had come together, CCC911 could be described as two distinct co-located PSAP rather than an amalgamated group of personnel, due to the strong cultural divide that existed between long-term Sheriff's Office and EMS agency personnel. Personnel from the two disciplines did not work together whatsoever, even though many of the emergency calls received by the law enforcement call-takers were medical in nature and therefore immediately transferred to EMS. Cultural divides such as this continued with each subsequent phase of consolidation. Each new agency that joined CCC911 brought with it personnel having an established organizational identity and legacy of differing organizational behaviors. These challenges remain, but are subsiding with time.

Additionally, fewer existing agency employees transferred into CCC911 than had been anticipated. Some chose not to accept County employment, while others resigned relatively soon after hire. Only approximately 50% of existing PSAP employees have remained with the new consolidated 9-1-1 center.<sup>109</sup> At the time of this research, CCC911 was preparing to transition in the City of Charleston's 9-1-1 center Law personnel, which will be the largest and final transition. Of the Charleston 9-1-1 center's 27–29 existing full time employees, Deputy Director Burrell expects only 7 or 8 to permanently transfer into CCC911. This high attrition rate has created staffing challenges and forced CCC911 to vigorously recruit new employees. However, those who do successfully transition seem to enjoy the new structure and organization found within CCC911. Having come from smaller 9-1-1 centers where employees performed multiple functions, they appreciate being able to focus on one role, either 9-1-1 call taking or radio dispatching. Deputy Director Burrell explained that they seem to prefer the more contemporary, industry-standard call processing model that has been established.

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<sup>109</sup> Lake and Burrell, conference call.

During the consolidation phases, CCC911 management encouraged the involvement of line-level staff in the decision making process often. Examples include the establishment of the employee dress code/uniforms and the selection of the type of workstation equipment in the new facility. Employees were offered positions on work groups and committees that provided input to the User Groups during operational policy development as well. Initially, there was active participation and buy-in from employees, but this declined in relatively short order. Employees simply seemed to lose interest and the work groups dissolved.

A question asked of Director Lake and Deputy Director Burrell regarded any unanticipated challenges and benefits that resulted from the consolidation of the region's 9-1-1 centers. The primary unanticipated challenge involves the difficulty of attracting and hiring qualified dispatchers to fill vacancies. For example, a recent recruitment drew 800 applications but resulted in fewer than 20 being hired and starting the training program. Not all will successfully complete training and become permanent employees. While the challenge to hire qualified dispatchers is not likely unique to CCC911 as a consolidated 9-1-1 center, it has been magnified by the higher than anticipated number of vacancies attributable to the consolidation.

An unanticipated benefit is the level to which certain existing 9-1-1 center employees have embraced the new CCC911 model and made contributions toward its success. Some who were initially resistant to the idea of transitioning to a consolidated 9-1-1 center have become the most ardent supporters and change agents. Several of these people have now moved into supervisorial positions or other administrative support roles. A specific example provided involved a long-term employee of one of the existing centers who had been strongly opposed to the concept of consolidation; she believed it would simply not work. After transitioning to CCC911, she soon became a floor supervisor. Ultimately, this employee was promoted to a management position and is leading the CCC911 training and quality assurance programs, in addition to other administrative duties.

## **G. POLITICS**

Director Lake and Deputy Director Burrell advised that the person most responsible for leading the initial drive toward consolidation in Charleston County was the chief of police for the city of North Charleston. He strongly supported the concept and was responsible for gathering the support of other police chiefs in the region. The chief was able to convince North Charleston's mayor of the value of consolidation and gained his support. From there, support began to develop amongst the nine elected members of the Charleston County Council. The effort was then moved forward by the formation of an exploratory consolidation committee comprised of local agency representatives and chaired by North Charleston's chief of police. The committee spurred the commissioning of a PSAP consolidation feasibility study, funded by a Department of Homeland Security grant and seven local jurisdictions.

When asked about the primary motivations behind the move toward 9-1-1 center consolidation, Director Lake indicated cost savings was the least of the considerations. The primary motivating factors were the desire to improve the quality of 9-1-1 dispatch services, interoperability and information sharing, and the coordination of emergency resources. The consolidation effort did not meet with political resistance in Charleston County. Rather, because the idea was generated at the local public safety agency level and then presented to elected officials as an opportunity to improve emergency services throughout the area, the consolidation effort enjoyed broad political support. Additionally, with the motivation being improved service as opposed to cost savings, the concept involved retaining all current 9-1-1 center employees. The absence of a need for significant employee lay-offs also likely contributed to the acceptance and support of the idea by agency leaders and elected officials.

## H. OTHER CONSIDERATIONS

As CCC911 was in its initial phases of consolidation, management looked to another consolidated center in South Carolina as a possible model: Spartanburg 9-1-1. Spartanburg 9-1-1 is the sole 9-1-1 center for all of Spartanburg County, serving over 80 public safety agencies, and is administered by Spartanburg County through its Office of Emergency Services.<sup>110</sup> Its governance structure is very similar to that of CCC911. Deputy Director Burrell advised the two consolidated 9-1-1 centers have developed a positive working relationship and often share information in support of one another regarding center operations.

Before being hired as the CCC911 Director, James Lake was employed by the consulting firm that conducted the Charleston County Consolidated Dispatch Feasibility Study. Deputy Director Burrell explained that hiring a director from “outside,” as opposed to hiring a director from one of the existing 9-1-1 centers or public safety agencies, was the right choice and important to the success of the consolidation effort. She explained that having an objective leader from “outside,” yet still very familiar with what needed to be done, facilitated the fair and equitable implementation of new policies and procedures for the center and removed any perceptions of undue influence by a single participating agency.

As a closing question, Deputy Director Burrell was asked to provide her perspective on the greatest benefit and greatest challenge of the CCC911 consolidation. She identified the greatest benefit as the improved information sharing that has resulted. When a 9-1-1 emergency call is received by CCC911, the information gathered is immediately and simultaneously transmitted to all agencies that will be involved in the response, plus any adjacent agencies that may benefit from the information. The sharing of this information, and the rapid

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<sup>110</sup> “Spartanburg Communications / 9-1-1.” Spartanburg County, accessed November 30, 2013, <http://www.spartanburg911.org/>.

development of the technological systems to make it possible, was directly due to consolidation. The cross-jurisdictional information sharing capabilities are continuing to expand, with a system now in development to exchange data with military law enforcement at Joint Base Charleston.<sup>111</sup>

### **Significant Benefit**

Deputy Director Burrell identified personnel issues as the most significant challenge for the CCC911 consolidation. From cultural differences between public safety disciplines to the difficulty hiring and retaining a qualified workforce, the issues surrounding personnel are by far the biggest challenge to completing the full consolidation effort. She believes the difficulties with personnel matters will eventually be corrected with the passage of time, as employees adapt to change and settle into the new consolidated model, and a common organizational identity develops specific to CCC911. She knows this to be true based upon the amount of progress that has been made in just the past four years. Deputy Director Burrell reflected, “It’s been very challenging, but the progress that we have made since 2009 is amazing—it’s absolutely amazing. I can’t imagine *not* having consolidated now.”

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<sup>111</sup> “Joint Base Charleston–Units,” United States Air Force, Joint Base Charleston, accessed November 30, 2013, <http://www.charleston.af.mil/units/index.asp>.

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## IV. CASE STUDY—PORTLAND BUREAU OF EMERGENCY COMMUNICATIONS

*We have excellent radio interoperability with the three adjoining counties—Clark County (WA) to our north, Washington County (OR) to our west, and Clackamas County (OR) to our south.*

—Lisa Turley, BOEC director,  
speaking to the region's public safety radio interoperability  
bolstered by the consolidated PSAP model

### A. BACKGROUND

The City of Portland's Bureau of Emergency Communications (BOEC), owns and operates a countywide consolidated Public Safety Answering Point (PSAP), commonly referred to as a 9-1-1 Center. BOEC personnel, numbering 141 in total, are employees of the City of Portland. BOEC has an annual budget of \$23.2 million, which is just 0.7% of the overall city budget.<sup>112</sup> BOEC is jointly funded by the City of Portland, its regional partner agencies, and state of Oregon 9-1-1 tax revenues. It provides 9-1-1 emergency dispatch services for the City of Portland and ten other agencies within Multnomah County, Oregon.

BOEC has a long, well-established history of providing consolidated public safety emergency communications services. From 1974 until 1994, Portland's emergency communications center was housed in a 1950s-era fortified underground facility, built to survive an atomic blast and maintain self-sustained operations for up to three months.<sup>113</sup> As part of the Portland Police Bureau, the early communications center handled only law enforcement (Law) emergency calls for several local police agencies. Emergency Medical System (EMS) calls were added in 1980. With the introduction of the nation's new 9-1-1 emergency

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<sup>112</sup> "Adopted Budget, City of Portland, Oregon: Fiscal Year 2013–14," city of Portland, accessed January 12, 2014, <http://www.portlandoregon.gov/cbo/article/456883>.

<sup>113</sup> "BOEC History," Portland Online, accessed September 2, 2013. <http://www.portlandonline.com/911/index.cfm?c=26662&a=6829>.

call system in 1981, all BOEC operators were cross-trained to handle both Law and EMS 9-1-1 emergency calls.

In 1994, BOEC moved into a new facility in southeast Portland where it remains today. At the same time, BOEC began providing 9-1-1 emergency dispatch services for fire service agencies within Multnomah County, substantially completing the consolidation of all regional 9-1-1 centers. The current facility also houses the region's shared public safety radio system, administered by Portland's Bureau of Technology Services, and Portland's Emergency Operations Center. Through an intergovernmental agreement established in 1995, BOEC continues to provide 9-1-1 dispatch services for all public safety agencies within Multnomah County, except for the Port of Portland. Table 9 presents each of the 10 agencies for which CCC911 provides services.

Table 9. BOEC's Participating Agencies<sup>114</sup>

BOEC—Agencies Served		
Law Agencies (5)	Fire/Rescue Agencies (4)	EMS Agencies (1)
Portland Police	Portland Fire & Rescue	Multnomah County EMS/American Medical Response (AMR)
Gresham Police	Gresham Fire & Emergency Services	
Multnomah County Sheriff*	Multnomah County Rural Fire District 14 (Corbett Volunteer Fire)	
Troutdale Police	Multnomah County Rural Fire District 30 (Sauvie Island Volunteer Fire)	
Fairview Police		

\*Cities of Wood Village and Maywood Park contract for public safety services through Multnomah County

BOEC is the largest PSAP in the State of Oregon. In fact, BOEC operates three of the five largest 9-1-1 centers in the state; the largest being their main floor (35 workstations), the fourth largest being their back-up center (a mobile trailer with 15 workstations), and the fifth largest being their fully functional training room (10 workstations).

<sup>114</sup>Lisa Turley, "BOEC Intergovernmental Agreement," email message to author.

BOEC comprises 141 employees; with 120 in operational roles and 21 in support roles.<sup>115</sup> Operational positions include 107 Emergency Communications (EC) Operators and 11 EC Supervisors. BOEC support staff includes

- One business operations manager and budget staff
- Two researchers who primarily prepare and provide 9-1-1 recordings as requested from various sources
- One client services liaison who manages customer relations with all partner agencies
- One emergency manager
- Several information technology (IT) employees, primarily dedicated to supporting the Computer Aided Dispatch (CAD) system
- One employee dedicated to legislative outreach and special projects
- One outreach coordinator
- Two support specialists who clean the work area and equipment, assist with scheduling, and perform other administrative tasks

One EC Supervisor is assigned to training and leads the in-house EC Operator Academy; this training supervisor position is rotated to a different supervisor every two years. BOEC has a training room that can accommodate nine trainees, so groups of 9–10 EC Operators are hired at a time and run through the academy as a cohort. This group training model has been the practice since at least 1985. After academy training, new EC Operators receive on-the-job training/certification in three different functional roles: first at 9-1-1 call-taking, then police dispatching, followed by fire dispatching.

There are 10 EC Supervisors assigned as “floor supervisors” who provide direct supervision of the main dispatch area. These supervisors are spread across shifts, ensuring that two supervisors are on duty at all times, 24 hours per day, seven days per week. Operational management is provided by an EC Operations Manager and two EC Assistant Operations Managers. Director Turley

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<sup>115</sup> Lisa Turley (director of Portland Bureau of Emergency Communications), personal interview with the author, November 1, 2013.

explained that she performs executive leadership functions and allows the mid-managers to fully run BOEC operations.

Director Turley advised that BOEC staffing levels had declined since the late 1990s, but then seemed to level off. More recently, staffing levels have fluctuated due to budget uncertainties; having had six positions added two years ago followed by four positions being cut last year. In all, however, BOEC has maintained a relatively stable number of positions. The BOEC Organizational Chart, presented as Figure 4, provides a snapshot of the 9-1-1 center's personnel deployment and organizational structure.

**BOEC Organization Chart**  
06/26/2013 FTE 137, LT 1

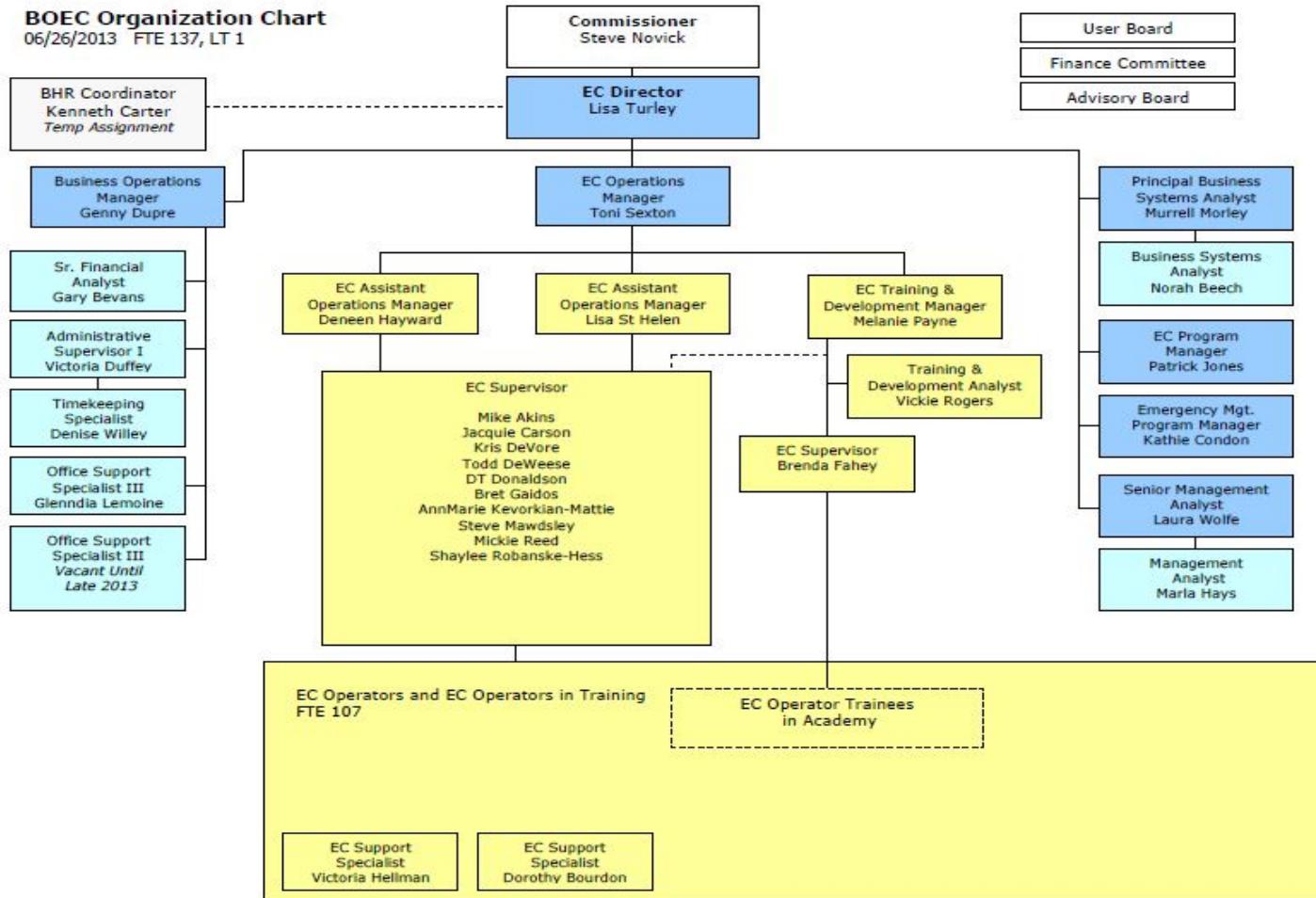


Figure 4. BOEC Organizational Chart<sup>116</sup>

116 "BOEC History."

To staff the 24-hour, year-round operation, BOEC Emergency Communications Operators are divided between a “4/10” shift schedule, meaning they work four 10-hour shifts per week, and a 12-hour shift schedule. The 12-hour shift variation was added in an effort to improve employee retention, as it was determined that one of the reasons behind tenured employees leaving for employment elsewhere was a desire for weekends off—something not provided by the 4/10 shift schedule. The 12-hour shift schedule provides employees with every other weekend off. EC Operators bid for their shift schedules every 6 months, based upon seniority. Table 10 shows the daily BOEC personnel deployment structure.

Table 10. 2013 BOEC Personnel Deployment<sup>117</sup>

BOEC Personnel Deployment 2013			
Hours	Staffing		
	Call Takers*	Dispatchers	Supervisors
0500-0700	7	10	2
0700-0900	9	10	2
0900- 1100	10	10	2
1100-1300	9	10	2
1300-1500	10	10	2
1500-1700	12	10	2
1700-1900	11	10	2
1900-2100	11	10	2
2100-2300	13	10	2
2300-0100	13	10	2
0100-0300	12	10	2
0300-0500	8	10	2

\*Numbers are averages from a two-week period in November 2013

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<sup>117</sup> Lisa Turley, “BOEC Shift Staffing Spreadsheet,” emailed message to author, November 7, 2013).

## **B. BUDGET / EFFICIENCY**

A primary question asked of BOEC Director Lisa Turley was whether 9-1-1 center consolidation within Multnomah County resulted in cost savings and improved efficiency. Being that BOEC has essentially operated in some form of consolidated model dating back to the 1970s, Director Turley could not definitively say the BOEC consolidated 9-1-1 center has reduced costs; there are no “pre-consolidation” costs available to compare against current costs. However, based upon her years of experience, Director Turley’s qualitative opinion is that the sharing of 9-1-1 center costs between agencies is a more cost effective model.

One qualitative indicator of possible cost efficiency is the continued, long term participation of user agencies. The same eight user agencies (outside of Portland’s own police and fire agencies) have “outsourced” their 9-1-1 dispatch service to BOEC for 20 or more years, each paying their share according to a population-based cost formula. Over the years, some member jurisdictions have expressed concern over the “high cost” of BOEC services, but none have broken from the intergovernmental agreement and established their 9-1-1 center. One argument is that this, in and of itself, indicates agencies have judged the cost to establish and maintain an independent PSAP as prohibitive when compared to the cost of continued participation in the BOEC intergovernmental agreement. However, there are other possible reasons for the continued participation. For example, bureaucratic inertia and comfort levels with “how things have always been done” could lead to continued participation.

In addition, an important secondary contributing factor in the State of Oregon is that the state will only provide 9-1-1 tax revenues to one PSAP per county. If an agency within Multnomah County other than Portland were to open a separate 9-1-1 center, it would have to do so without the support of state 9-1-1 funding. This is an important financial incentive, especially in these times of resource scarcity within local government, possibly preventing a serious re-

examination of continued participation in the BOEC intergovernmental agreement.

Regarding efficiency, Director Turley provided her personal, qualitative assessment that the BOEC consolidated PSAP has “certainly improved operational efficiency.”<sup>118</sup> Her opinion is that having a single regional 9-1-1 Center, where all call takers and dispatchers are managed within a single set of organizational policies and procedures, and trained to the same high standards, results in standardized service delivery across all jurisdictions. All citizens within Multnomah County receive the same 9-1-1 service level and all first responders are dispatched according to the same guidelines. Director Turley explained this standardization results in the most efficient processing of 9-1-1 emergency communications possible, across all jurisdictions; from answering the 9-1-1 phone call, to entering and transmitting data through the single CAD system, through dispatching and managing the public safety response over the common radio system.

One cost measure of 9-1-1 dispatch services is the “per-call” cost, or the average amount it costs the 9-1-1 center to handle each emergency call. The per-call cost is determined by dividing the overall budget figure by the total number of emergency calls processed by that center. While this simple metric can be valuable to the individual organization, in that it provides a “snap shot” of costs that can be used to track efficiency from year to year, it can become problematic if used to compare costs between different 9-1-1 centers as each organization’s budget includes many variables. For example, one 9-1-1 center may employ personnel in-house to provide IT services and cleaning services, while another may have the benefit of receiving those services from an associated county or city department. Thus, the cost for IT and cleaning services may be included in one organization’s “overall budget,” but not in another’s. Many such variances exist between 9-1-1 center budgets, making it nearly

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<sup>118</sup> Turley, interview.

impossible to compare costs across organizations with a simple per-call formula. The depth of research necessary to conduct the complex analysis required for accurate agency-to-agency budget comparisons was not possible for this researcher, given the limited time frame and resources. Consequently, it is not possible to make a definitive assessment of cost efficiency within the scope of this study.

BOEC's total operating budget, including the debt service cost for the new multi-million dollar CAD system, is approximately \$23.2 million. Dividing the budget figure by BOEC's annual 750,000 emergency calls, results in an approximate per-call cost of \$31. However, this cost figure is not used as a basis for the cost charged to the user agencies. Rather, BOEC charges each user agency a percentage of the overall budget equal to the percentage of population served within the agency's jurisdiction.

Director Turley indicated the purely population-based cost formula can be a challenge, in that the per capita rate of service consumption is not equal across all jurisdictions. For example, the city of Portland averages about 22,000 emergency calls per month, whereas the small town of Fairview averages about 195. This equates to a per-capita ratio of approximately .036 for Portland residents and .022 for Fairview residents. Portland residents are therefore heavier consumers of services, yet pay the same population-based rate as Fairview. In total, the formula results in the user agencies funding approximately 20 percent of the overall BOEC budget.<sup>119</sup> The population-based charging formula is presented in Table 11.

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<sup>119</sup> "BOEC Budget Information" (Power Point presented at the Bureau of Emergency Communications Public Outreach Forum, Portland Police Bureau - East Precinct, January 11, 2011), <http://www.portlandonline.com/911/index.cfm?c=54010&a=333863>.

Table 11. User Agency Charging Formula<sup>120</sup>

BOEC Population Based Charging Formula (Fiscal Year 2014/2015)		
User Agency/Jurisdiction	Population	Percent of Total Population
<b>City of Fairview</b>	8,920	01.19
<b>City of Gresham</b>	105,970	14.12
<b>Maywood Park</b>	750	00.10
<b>City of Portland</b>	590,419	78.64
<b>City of Troutdale</b>	16,005	02.13
<b>Wood Village</b>	3,890	00.52
<b>Multnomah County (Unincorporated Areas)</b>	24,798	03.30
<b>TOTAL</b>	<b>750,752</b>	<b>100.00</b>

## C. LEVEL OF SERVICE

The general effect of 9-1-1 center amalgamation upon service levels to both internal and external customers was explored. Specifically, the BOEC Director was asked about the effects upon training, operational standards, response times, quality of communications with field units, coordination of resources, and satisfaction levels of user agencies. Director Turley indicated the BOEC consolidated model provides a higher quality level of service in each area examined. A review of available quantitative quality of service measures was also conducted.

### 1. Customer Service

BOEC has considered conducting surveys across all user agency jurisdictions to gauge both user and citizen satisfaction levels, and rate the quality of service being provided, however none have yet been done. However, the city of Portland conducts annual citywide surveys to track constituents'

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<sup>120</sup> Lisa Turley, "PSU Certified Population Information for Cost Formula," email sent to author January 1, 2014.

satisfaction levels with its municipal services. One of the categories included in the Portland surveys is 9-1-1 services.

The specific 9-1-1 services survey question asks, of those respondents who called 9-1-1 during the last 12 months, “How do you rate the services you received on the phone from the 9-1-1 call taker?” Results for the 2013 survey show 81 percent of respondents to that question believe the 9-1-1 services provided by BOEC were either “good” or “very good.”<sup>121</sup> The survey results for each of the previous 4 years showed similarly high levels of satisfaction, with each year’s ratings above 80 percent. The survey also included more general questions as to the “overall quality” of police, fire, and 9-1-1 services. The comparable 2013 ratings for each of those categories were 61 percent for police services, 85 percent for fire services, and 76 percent for 9-1-1 services.<sup>122</sup> Unlike the more specific 9-1-1 services question, these general rankings include data from respondents that did not actually utilize 9-1-1 services. The comparable rating level (good/very good) for *overall* city government was 50 percent.<sup>123</sup>

## **2. Coordination of Resources**

Director Turley highlighted the centralized coordination of information and resources as a direct benefit of the BOEC consolidated model. While the Portland Police Bureau rarely needs support from outside police agencies, due to its size and availability of resources, smaller police agencies often back one another up on emergency incidents. Director Turley explained the consolidation of emergency communications into a single shared 9-1-1 center provides better service to those smaller agencies and improves officer safety. When an emergency incident occurs in any part of the county, all EC Operators are immediately aware and able to coordinate the sharing of resources between the

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<sup>121</sup> “City of Portland: 23rd Annual Community Survey Results,” accessed December 21, 2013, <http://www.portlandonline.com/auditor/index.cfm?a=468341&c=60923>.

<sup>122</sup> Ibid.

<sup>123</sup> Ibid.

responding agencies. If each agency maintained a separate 9-1-1 center, this type of joint response would be less efficient and likely require operators to coordinate over the phone between jurisdictions. This concept applies to the timeliness of Fire and EMS response as well. Rather than a fire or medical emergency call coming into a primary law PSAP and then being transferred to a secondary fire PSAP, the consolidation allows for the complete processing of these emergency calls at the initial point of receipt. All types of emergency calls are answered and completely managed to fruition within the same location and by the same group of employees.

Finally, Director Turley noted that the consolidated communications center allows for increased availability of 9-1-1 personnel resources in the event of a major emergency incident. If the smaller user agencies were to operate separate 9-1-1 centers, staffing levels would be smaller to match the reduced operating budgets. 9-1-1 centers with only two to three operators on duty can be easily overwhelmed by large-scale incidents. BOEC's staffing model allows for the immediate sharing of EC Operators assigned to the various user agencies' dispatch channels. Additional personnel are on-hand and readily available to assist, unlike a smaller 9-1-1 center where additional personnel would only be available by calling them in from off-duty status.

While having increased levels of staffing for emergencies is beneficial, Director Turley noted there are both pros and cons to having operators working the variety of positions created by servicing multiple user agencies. EC Operators can begin their 10-hour shift working at a dispatch station for one agency, then later move to a 9-1-1 call-taking position, and finish their shift at yet a third workstation for another user agency. The negative presented here is that such lack of continuity creates learning curve challenges for the operators; the time required for all operators to become familiar with any procedural changes made for one user agency is lengthened. However, this is becoming less of an issue as BOEC incorporates and regularly updates agency-specific reference guidelines into the new CAD system. Positively, however, the availability of fully

trained EC Operators, who can work in any capacity within the consolidated 9-1-1 Center, increases surge capacity; these employees can be readily moved to the areas where they are needed most when demands rise.

### **3. Training, Quality Control, and Standard Operating Procedures**

A recent report by the City of Portland Auditor's Office was conducted for the purpose of determining

whether the Bureau provides ongoing training and staff development to ensure that operators have the necessary dispatch skills; whether call-handling quality control processes are adequate to improve call-handling performance; and whether Standard Operating Procedures are aligned with BOEC's partner agencies' input and with BOEC operations and staff expectations.<sup>124</sup>

The audit report seems fair and objective in its assessment; the auditor is an independent elected official, and both the BOEC director and its overseeing (elected) City Commissioner provided written responses that were included in the final report. Data examined during this audit revealed:

- BOEC has developed an effective new operator training academy and certification program, including the adoption of a detailed training plan with a goal to certify up to 50 percent of new hires, a "skills checklist" for call taking and dispatch training, and specified training for the "coaches" who train new operators
- During fiscal year (FY) 2102, 61 percent of calls were emergency calls, and the number of both emergency and non-emergency calls has been increasing for the past two years
- The BOEC workload has been increasing since 2011 - the number of calls and radio dispatch actions per operator has increased from 8,485 in FY 2011 to 10,631 in FY 2012, a 25% increase
- Implementation of the new CAD system has required adjustments to procedures, which are still being incorporated
- BOEC has detailed Standard Operating Procedures and user agencies provide input into their development

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<sup>124</sup> "Emergency Communications: Training, Quality Control and Procedures Warrant Improvement, Office of the City Auditor—Portland, Oregon, accessed December 15, 2013, <http://www.portlandonline.com/auditor/index.cfm?a=455675&c=60923>.

- There exists some inconsistency between the operators' understanding of their level of allowed discretion and judgment in the application of SOPs and management's expectations—primarily due to communication issues

The report recommended changes to the BOEC approach toward ongoing training, quality control, and Standard Operating Procedures (SOP).<sup>125</sup> While increased on-going training was recommended, the challenge noted by Director Turley in her audit response involved a lack of financial resources to meet that need. Being that 9-1-1 operations must be maintained at all times, removing operators from the operations floor and placing them in training requires either (1) conducting training outside of their normal shift on an overtime basis or (2) the hiring of additional staff. Balancing minimum staffing requirements with on-going training needs is a constant challenge. However, Director Turley indicated additional staffing allocations are expected that will assist in her efforts to increase on-going training for staff.

As noted in the report, BOEC has established an effective new-hire training academy. This would not be possible without adequate in-house staffing to administer the academy program, something smaller individual PSAPs simply cannot provide. Director Turley indicated this is one benefit of a consolidated model. Without the pooling of resources through consolidation, smaller 9-1-1 centers have little choice but to send their new hires to minimum training programs provided by other agencies, costing them money for training that is not necessarily tailored to their own specific policies, procedures, and technology systems. Director Turley has worked for other 9-1-1 centers and as a consultant for a firm that specializes in advising and supporting 9-1-1 center projects. Based upon her experience, she qualitatively assesses BOEC's employee training program as "state-of-the-art." However, even before training begins, the hiring selection process itself is crucial to increasing the success rates of new employees.

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<sup>125</sup> "Emergency Communications: Training, Quality Control and Procedures Warrant Improvement."

BOEC has a thorough hiring process that helps identify the most capable and qualified candidates for hire. Applicants first submit a résumé and a typing certificate, then complete an interactive, industry-standard test called CritiCall. The test is designed to help identify the most capable public safety dispatch candidates by testing motor skills and visual memory.<sup>126</sup> Successful candidates are then invited to an interview conducted by the training manager, an EC Supervisor, and at least one EC Operator. Each candidate then participates in a brief interview with an operations manager and Director Turley. This final interview is focused upon ensuring the candidate is the “right fit” for the organization and fully understands the level of commitment required for success should they be hired. Finally, candidates selected for hire must pass a drug screening and a state-mandated background investigation and psychological exam.

Once hired, new EC Operators enter BOEC’s academy training program, which includes a state-mandated two-week stint at Oregon’s Department of Public Safety Standards and Training Academy for basic telecommunicator and Emergency Medical Dispatch (EMD) training. BOEC then provides eight to-10 additional weeks of intensive training at their in-house academy. After academy training, the new EC Operators begin a lengthy on-the-job training/certification process, which progressively moves them through the three main functional roles. This process entails six to nine months of training as a call-taker, followed by 9 months of police dispatch training, and ending with four to six months of fire dispatch training. After successfully earning certifications at each stage of training, the operator is classified as a senior dispatcher—indicating the operator can work at any position within the 9-1-1 center. In all, the hiring, training, and certification process takes about two years to complete.

As to quality control, the report noted that BOEC “tracks call handling effectiveness, efficiency and workload measures,” investigates individual

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<sup>126</sup> “Criticall 911 Public Safety Dispatcher Pre-Employment Testing,” Biddle Consulting Group. accessed December 27, 2013, <http://criticall911.com/>.

problems as they arise, and implements necessary changes to procedures in response.<sup>127</sup> The recommendation here was for BOEC to develop a means for tracking issues on a longer term basis to identify trends and correct overall systemic problems. However, BOEC already compiles a weekly report of call handling complaints along with a summary of how each was addressed. As noted by Commissioner Novick in his audit report response, “The bureau analyzes all complaints to look for themes and assesses how best to address systemic issues.”<sup>128</sup>

Relative to employee perceptions of management’s expectations of strict adherence to SOPs, the report recommended clarifying expectations for the use of SOPs by defining “when operators have discretion to adapt or depart from procedures,” and “implement[ing] clear communication channels within the organization.”<sup>129</sup>

Director Turley explained BOEC is taking a progressive approach toward this recommendation, one founded upon the concept of turning the BOEC training and operational culture from a “rules based” organization toward a “values based” organization; one that encourages more employee input into SOP development and application, and focuses on outcomes more than process. BOEC is moving from having 175 detailed SOPs, any one of which an employee could be disciplined for violating, to somewhere in the range of just 20 SOPs. The SOPs would then exist to address only the most significant procedures that allow for little discretion in their application by employees. Procedures having less significance, in terms of legal restrictions and liability risk for example, would be addressed through a set of reference guidelines that allow for more adaptation at the line level. Evaluating performance will then naturally become

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<sup>127</sup> “Emergency Communications: Training, Quality Control and Procedures Warrant Improvement.”

<sup>128</sup> Ibid.

<sup>129</sup> Ibid

more focused on successful outcomes than merely strict adherence to a large number of detailed written procedures.

#### **4. Managing Unique, Agency-Specific Service Needs**

When asked how unique service requests from user agencies are managed, Director Turley explained that a process exists to incorporate agency-specific procedures into the SOPs. BOEC strives first for standardization and consistency of procedures across all jurisdictions, but some unique service needs are accepted and written into policy.

Through the User Board policy advisory process, BOEC has been successful in standardizing the response protocols across all user agencies.<sup>130</sup> BOEC has developed discipline-specific Dispatch Committees, composed of line-level first responders, call-takers/dispatchers, and at least one operations manager. These committees discuss and develop the policies that are ultimately brought before the User Board for approval. Additionally, BOEC has a client services liaison who is dedicated to working with all user agencies and coordinating the development of procedures. He is often able to bring the agencies to understand the value of having standardized procedures by emphasizing the consistency in service that will result. However, occasionally a particular procedure cannot be generalized and applied to all jurisdictions, so it is written into policy and addressed through employee training.

To help EC Operators handle any variations in procedure between agencies, BOEC has implemented procedural guidelines into the CAD system. When the operator selects the type of incident, for example a sexual assault or burglary, the system automatically presents a set of guidelines to help the operator provide the appropriate response. If the Portland and Fairview police departments require differing responses to a certain call type, the system points out the unique differences to aid the operator.

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<sup>130</sup> The User Board is discussed in more detail within the governance section of this thesis.

#### D. INTEROPERABILITY

The effects of the BOEC amalgamation of 9-1-1 centers upon communications interoperability were discussed with Director Turley, including both voice radio communications and data sharing.

Director Turley emphasized the shared technology systems developed in Multnomah County as a direct benefit of the BOEC consolidated model. All user agencies use the same Portland-owned public safety voice radio system, which is in the process of being replaced with a more modern system. Like BOEC itself, the cost of the radio system is supported by the various public safety subscriber agencies that pay for access. Portland's radio system is a key component of a larger, regional effort toward interoperability being funded in part by a grant through the Department of Homeland Security (DHS) and founded upon the SAFECOM Interoperability Continuum.<sup>131</sup> As a member of the Portland Dispatch Center Consortium, BOEC is one of seven countywide 9-1-1 centers within the DHS designated Portland Urban Area Security Initiative region that are working together to coordinate all emergency communications systems into a fully interoperable "system of systems."<sup>132</sup> Director Turley noted, "We have excellent radio interoperability with the three adjoining counties—Clark County (WA) to the north, Washington County (OR) to our west, and Clackamas County (OR) to our south."

Additionally, all police agencies within Multnomah County share the same Records Management System (RMS), which allows crime information to be readily shared between agencies. This shared RMS is also in the process of being replaced with a more modern system. The recently-selected replacement RMS is produced by the same vendor who developed BOEC's new CAD system, making both systems completely compatible. Alignment of these systems will

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<sup>131</sup> "DHS | SAFECOM," United States Department of Homeland Security, Office of Emergency Communication, accessed December 25, 2013, <http://www.safecomprogram.gov/>.

<sup>132</sup> "Portland Dispatch Center Consortium: Interoperable Communications Strategic Plan Update," city of Portland, accessed December 25, 2013, <http://www.portlandoregon.gov/rdpo/article/457015>.

allow for information sharing and data analysis that was previously not possible. Already, through BOEC, all user police agencies are dispatched using this recently-upgraded CAD system, which pushes information to and receives information from officers in the field over an in-car mobile computer system. Establishing such broad, common data sharing systems between multiple agencies is possible without a consolidated PSAP, however it is very unlikely these systems would have developed in this way outside of the long-standing consolidated model found in BOEC. BOEC provides a foundation for public safety resource sharing and interagency partnerships in Multnomah County.

As with any 9-1-1 center, support for technology systems is crucial. These systems must remain continually operational, which requires IT support staff be well trained, knowledgeable of the highly specialized hardware and software, and available or on-call 24 hours per day. IT support for BOEC is provided by Portland's Bureau of Technology Services (BTS), although five BTS IT employees are assigned solely to BOEC and are funded through the BOEC budget. These five IT employees provide support for CAD, Geographic Information Systems (GIS), and data research and reporting. In addition to the five on-site employees, BOEC pays for IT networking, firewall, and security support. Overall, IT systems and services comprise approximately 23% of BOEC's \$20 million budget.<sup>133</sup>

While BOEC does not provide IT support for user agencies' systems (outside of the 9-1-1 dispatch-related systems), BTS does operate and maintain nearly all of the in-car computer systems of the law enforcement agencies in the region.

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<sup>133</sup> Turley, interview.

## E. GOVERNANCE

The BOEC Intergovernmental Agreement (Appendix B) formalized the BOEC governance structure, which allows user agencies a level of “local control” over SOPs. The agreement established a User Board, consisting of one representative each for the following agencies:

- Portland Police Bureau
- Portland Bureau of Fire, Rescue and Emergency Services
- Multnomah County Sheriff’s Office
- Gresham Police Department
- Gresham Fire Department
- Multnomah County Emergency Medical Services
- Troutdale Police Department
- Fairview Police Department
- City of Wood Village
- City of Maywood Park
- Corbett - Fire Protection District 14
- Sauvie Island—Fire Protection District 30

Members of the User Board are appointed by the chief administrator of each user agency. The User Board also has three citizen representative members, each chosen to represent a swath of geography within Multnomah County; the “intent being to provide cross-county representation.”<sup>134</sup> The citizen representatives are selected jointly by all user agencies.

The User Board acts as the BOEC policy advisory group, recommending implementation of procedures that affect user agencies through a simple majority vote. The board is also allowed to provide input regarding the hiring or discharge of the BOEC director, but the city of Portland retains ultimate authority for these decisions. The board’s authority includes:<sup>135</sup>

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<sup>134</sup> “BOEC Intergovernmental Agreement.”

<sup>135</sup> Ibid

- Reviewing policies that affect user agencies
- Making recommendations as to BOEC's budget and user agency charging formula/process
- Acting as liaisons between the participating user agencies
- Participating in the planning, development, and implementation of all new technical operating systems that users help fund or that affect user's operations

The primary functioning governance body is the User Board. However, Director Turley advised there also exists a finance committee, which remains focused on budgetary review and recommendations, and an Advisory Committee that rarely convenes. The Advisory Committee is a high-level, executive review group, comprising only the commissioner in charge of BOEC and the mayors of all other user agency jurisdictions. This committee has not seen a need to convene often, since BOEC is viewed as being effectively governed through the User Board.

Director Turley believes the BOEC governance structure is beneficial in that it allows the sworn executives of public safety agencies, or their representatives, to provide input and guidance as to BOEC budget and operating procedures, yet grants her the authority to completely run operations. Ultimately, she answers only to her commissioner and is shielded from all direct authority of any sworn police or fire chief. In many traditional, non-consolidated 9-1-1 centers, the PSAP falls under the organizational umbrella of a police department, where a sworn police manager oversees all operations. Sworn public safety managers generally have little-to-no experience with 9-1-1 dispatch operations or the complex technical systems involved. Additionally, due to the nature of sworn public safety organizational structure, these sworn managers remain in these roles for relatively short periods of time, several years at the most. The learning curve involved with assuming such a role is a challenge—long-term 9-1-1 center civilian staff must once again train the “new” sworn director. A consolidated 9-1-1 center model that produces a long-term executive director with years of professional 9-1-1 center experience, and grants her true executive oversight

authority, is preferred. This model provides better consistency and continuity in the organization's leadership and vision. Removing 9-1-1 center operations from the purview of a first responder public safety agency moves the organization from being one that supports the entire public safety agency (through all manner of ancillary duties) to one that remains completely focused on providing quality, efficient 9-1-1 dispatch services.

Director Turley provided a recent example of how her authority under the BOEC governance model allowed her to implement changes that benefitted 9-1-1 center operations. Because BOEC originated as part of Portland's Police Bureau, some long-held, police-focused procedures had simply carried over and were still being observed. "Historically," she said, "we have always provided some services that are better suited for police records personnel or other police department personnel."<sup>136</sup> One example was the acceptance of citizen complaints about police officers, how they handled an investigation or some level of force they employed, for example. Another example was providing information to citizens who called to inquire about the process for submitting or retrieving a police report online. To examine the practicality of these ancillary duties, and to determine if they should remain within BOEC, Director Turley initiated a 16-week project wherein many such duties were transferred away from BOEC responsibility and moved to the appropriate law enforcement agency. Freeing EC Operators from non-emergency communications duties allows them to remain focused on the 9-1-1 center's core functions, improving the efficiency of BOEC personnel resources. Director Turley believes that if she were subject to the direct authority of a police chief, the transfer of these duties away from BOEC would not have occurred.

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<sup>136</sup> Turley, interview.

## F. ORGANIZATIONAL BEHAVIOR

BOEC has a well-established organizational identity, one that has developed and solidified over decades of operation as a consolidated, multi-disciplined 9-1-1 Center. When asked to explain, Director Turley stated, “The biggest benefit is that we are BOEC. We are not Portland Police Bureau or Portland Fire and Rescue—we are Portland Bureau of Emergency Communications.”<sup>137</sup> This is not the case with 9-1-1 centers that are a subsidiary of a local public safety organization. Director Turley indicated that BOEC employees identify as belonging to a distinct and individual organization that is focused on one mission: providing the best possible 9-1-1 dispatch services. She explained that this is a significant difference from PSAPs that are administered under the umbrella of a parent public safety organization, in that those PSAP employees ultimately answer to the authority of a police or fire chief and often perform ancillary duties related to that parent organization.

If Portland’s 9-1-1 center was under the authority of Portland Police Bureau, for example, its mission would be blended with that of the parent organization and it would have less autonomy as to overall management. One example provided by Director Turley involves how the BOEC independence and identity results in a more objective response from call-takers toward complaints of public safety service. When callers express frustration or concerns regarding the service of a partner public safety agency, BOEC personnel are able to discuss those concerns more objectively and without becoming defensive. Director Turley describes this as resulting in a more “helpful” conversation to the caller, since staff is better able to objectively listen and understand the concerns, then assist the caller with finding the appropriate resource. BOEC personnel do not find themselves trying to explain or justify the actions of first responders, as they do not hold a strong identification to that public safety agency. Rather, they are primarily concerned with the service that is being provided by BOEC.

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<sup>137</sup> Lisa Turley, “BOEC Organizational Identity,” email message to the author, January 27, 2014.

Another contributor to the development of a strong BOEC organizational identity is the elevated budgetary and political power that has resulted from its more independent position within the Portland government structure. As a separate bureau answering to a single elected commissioner, BOEC is positioned as an “equal competitor” to all other bureaus, including police and fire. The BOEC commissioner therefore has substantial political influence toward citywide budget and priorities, elevating the 9-1-1 center within the broad citywide government structure. In this sense, BOEC employees have come to view themselves as part of an important organization with a true voice within city government, and not merely a subsidiary of a more powerful public safety organization.

Additionally, as opposed to other organizational models, Portland’s public safety department personnel have no direct authority over BOEC policies or personnel matters. This forces the public safety managers to work through their chain of command to address concerns they may have with BOEC performance. The BOEC Director, sitting at the organizationally-equivalent level as the police or fire chief making the request, then has the authority to address those concerns within her own organizational context. This creates an atmosphere of independence and strengthens the identification of the organization for its members. The members know they answer only to the BOEC director and not a police or fire department commander.

Unlike more recently formed consolidated centers, no organizational issues exist within BOEC related to “transitional stress;” even the most tenured BOEC employees have only known a consolidated work environment. So, while no data exists to evaluate the initial transitional process, this indicates the transitional challenges associated with consolidation can be overcome. Director Turley believes transitional challenges with organizational behavior have more to do with employees having to cope with significant change, rather than any factors directly associated with the consolidation of 9-1-1 dispatch services. Any established organization being merged with another will cause similar stress for

affected employees. Simply because this transitional stress presents challenges, does not mean the end result will be less beneficial once those challenges have been overcome. The organizational identity that exists within BOEC demonstrates that organizational behavior issues developing during the consolidation of 9-1-1 services can dissipate with time.

## **G. POLITICS**

With BOEC being such a long-term, established consolidated 9-1-1 center, Director Turley had no knowledge of any political support or resistance factors associated with its creation. There have been no political issues surrounding the nature of the consolidation during her tenure as director. Director Turley believes there is general support for the consolidation amongst all user agencies. Elected officials and other stakeholders have expressed no concern nor offered another model for providing 9-1-1 dispatch services. In Multnomah County, the consolidated PSAP model has simply become the accepted standard.

The lead agency/jurisdiction for the 9-1-1 center consolidation within Multnomah County was the City of Portland. Director Turley is unaware of the primary motivations or drivers behind the initial consolidation effort, but believes it happened more as a natural progression of expansion rather than a concerted effort to change from a single PSAP into a consolidated PSAP. The City of Portland is the largest municipality within the county and developed the primary emergency call center when 9-1-1 was first introduced. Being that the state of Oregon only provides 9-1-1 tax revenue for one PSAP per county, Portland's emergency communications center logically developed into a larger, countywide 9-1-1 center that serves all smaller jurisdictions as well.

## **H. OTHER CONSIDERATIONS**

When asked what other models of 9-1-1 center operations she was aware of, Director Turley explained she was previously employed by a municipal 9-1-1 center in another state that was operated by the police department, a

common form of non-consolidated 9-1-1 center. This center was the city's primary PSAP, meaning that all 9-1-1 calls—police, fire, and medical—were received at this location. Non-police calls were then manually transferred to the appropriate secondary PSAP, which was actually located within the same facility. This model could be described as a “co-location,” rather than a true consolidation of 9-1-1 centers. While perhaps achieving the benefits of cost savings through the use of a shared facility and systems, this model did nothing to improve the time delay associated with having two separate PSAP. A built-in delay existed for all fire and medical calls, due to the time required to answer the phone, ascertain the nature of the call, and transfer the caller to a secondary Fire or EMS PSAP.

Director Turley also previously worked for a consulting firm examining the consolidation of police 9-1-1 dispatch services for a group of California municipalities. This consolidation never came to fruition, which she believes was because the involved agencies had conflicting expectations as to how a consolidated 9-1-1 center would address their own unique service needs and community expectations. For a consolidation effort to move forward, agencies must agree fairly early in the process on what level of service is to be expected. There must be some commonality amongst the agencies to foster collaboration and realize the benefits of consolidation. If one agency expects 9-1-1 dispatchers to provide ancillary duties in the interest of customer service, for example, while another agency is interested more in reducing costs by keeping the 9-1-1 center focused on its core functions, the conflicting interests will only become more problematic as the project progresses. For this reason, Director Turley explained, early discussions and consensus regarding the project vision and goals are critical to the success of a consolidation effort.

To close the interview, Director Turley was asked to succinctly summarize what she believes is the most significant benefit and the most significant challenge associated with 9-1-1 center consolidation.

### **Significant Benefit**

Director Turley assessed the standardization of services created by the consolidation of 9-1-1 dispatch services in Multnomah County to be the greatest benefit. Everyone who accesses 9-1-1 public safety services receives the same level of professional, quality service; whether that person is a resident of one of the various cities or unincorporated areas, a visitor, or a first responder. This is due to BOEC's training standards and operational policies, which have been developed with input from all user agencies. Additionally, BOEC has written goals and expectations as to levels of customer service that all EC Operators strive to meet. Director Turley believes having this single set of high quality expectations applied to every customer improves the overall level of service provided throughout the entire county, something not possible when multiple, separate 9-1-1 centers exist.

### **Significant Challenge**

Director Turley identified the most significant challenge to be ensuring all partner agencies remain actively engaged and recognize their input regarding BOEC operations is needed and valued. At times, she explained, individual user agency representatives may not be as actively involved in communication regarding changes to systems or procedures BOEC is preparing to implement, and then come away with the perception of having been disregarded when those changes take effect. To prevent this, constant communication with user agencies through the User Board is required, and information exchanges with less-active board members are particularly emphasized. Director Turley asserted that occasionally user agency heads do not take full advantage of the established governance structure to ensure their input is received and considered. Her desire is to provide the highest level of service possible to all customers, which requires active two-way communication toward consensus building with all user agencies. She and all BOEC employees truly care about the first responders and citizens they serve, regardless of jurisdictional boundaries.

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## V. FINDINGS AND CONCLUSIONS

We do things better than they used to, and we do things more efficiently. Better service, lower cost.

—Dennis Kidd,  
*SCR911 general manager*

### A. ANALYSIS AND KEY FINDINGS

From 2007–2009, the United States’ economy suffered its deepest recession since World War II, which was coined our nation’s Great Recession. The recovery since has been much slower and weaker than past experience would have us predict.<sup>138</sup> Many state and local governments have experienced dramatic reductions in revenues and continue to struggle with meeting service demands with diminished resources. Public safety agencies have not been exempt from cuts, arguably jeopardizing their ability to effectively provide core services and weakening their contribution to the homeland security enterprise. Interest in cost savings and efficiency measures has therefore necessarily increased. The consolidation of governmental resources, and, specifically the regional consolidation of local 9-1-1 centers, provides one possible means to that end. This study attempts to answer the question, how successful has the consolidation of local public safety 9-1-1 communications centers been thus far?

In search of that answer, case studies of three consolidated 9-1-1 centers were conducted: Santa Cruz (CA) Regional 9-1-1, Charleston County (SC) Consolidated Communications Center, and Portland’s (OR) Bureau of Emergency Communications. The primary data were collected through semi-structured interviews of these amalgamated 9-1-1 centers’ top executives, each having over 25 years of experience in the field of 9-1-1 emergency

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<sup>138</sup> Janet L. Yellen, “A Painfully Slow Recovery for America’s Workers: Causes, Implications, and the Federal Reserve’s Response” (presented at the Trans-Atlantic Agenda for Shared Prosperity Conference, Washington, DC, February 11, 2013), 2, <http://www.federalreserve.gov/newsevents/speech/yellen20130211a.htm>.

communications. Secondary data related to each center were obtained from published reports, direct observation, 9-1-1 call load and dispatch incident statistics, staffing rosters, etc. The interviews were audio-recorded, fully transcribed, and closely reviewed. An iterative approach toward data analysis was then used to identify specific “first order concepts” within each data set (case study). This involved constructing a chronological summation of facts within each of the categories explored within the interview framework. These categories were General Facts, Budget and Efficiency, Service Level, Interoperability, Governance, Organizational Behavior, Politics, and Other Considerations. The identified first order concepts were then evaluated for underlying themes and patterns across case studies, resulting in 15 general “second order themes.” Finally, second order themes were generalized further and synthesized into broad, “overarching dimensions.” Figure 5 graphically represents the applied analytical process and its resulting first order concepts, second order themes, and overarching dimensions. The overarching dimensions have been used as a framework here to present and discuss key findings.

Six key findings emerged that provide insight into this study’s two areas of inquiry: 9-1-1 center consolidation’s affect upon (1) cost efficiency and service quality, and (2) its organizational strengths and weaknesses. Taken together, these findings help answer the primary research question.

## Data Analysis Process

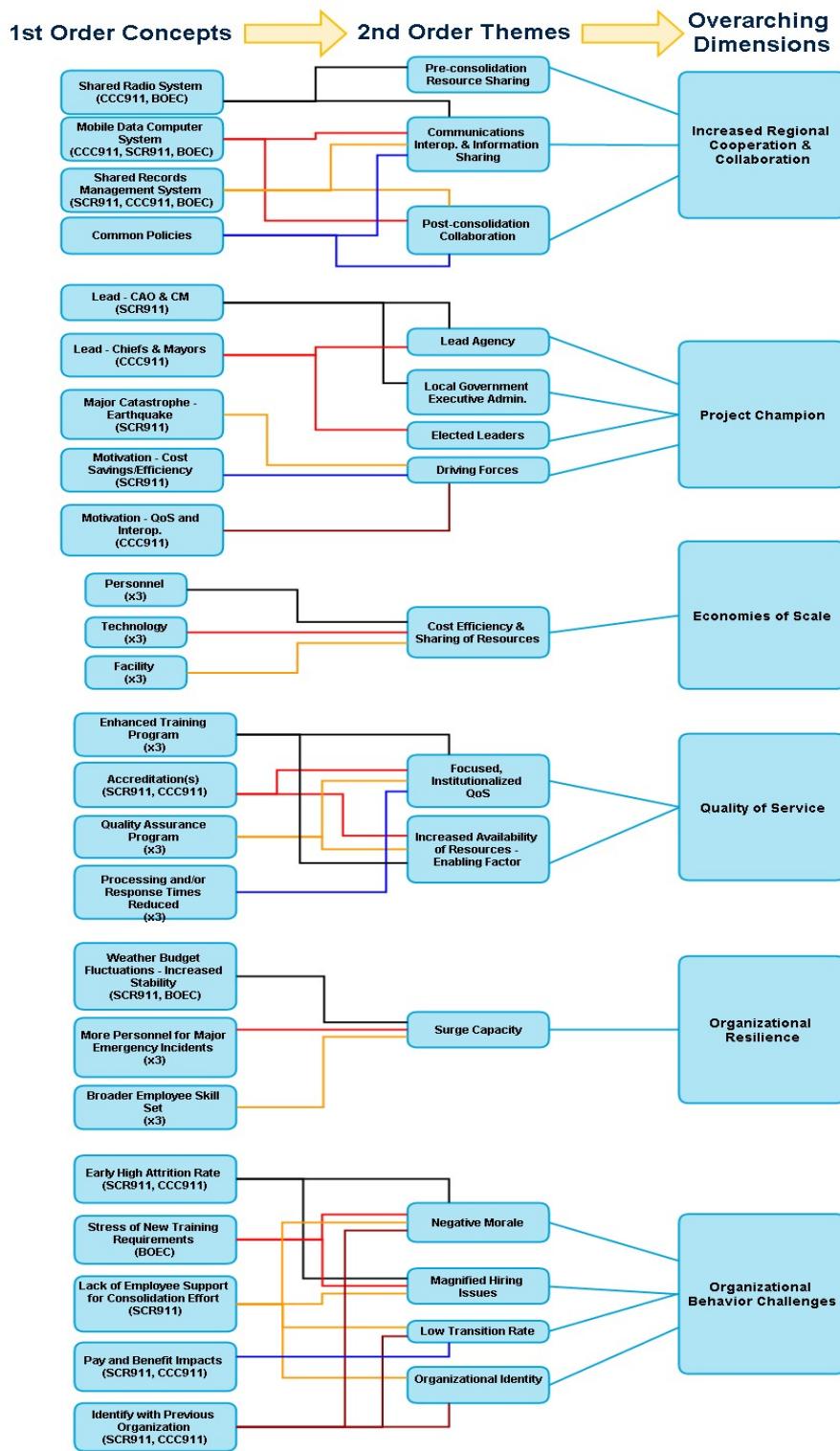


Figure 5. Applied Analytical Process

## **1. General Facts**

Each participant was asked to begin the interview by providing general facts, such as when their 9-1-1 center was established, the number of employees, shift staffing structure, and the number and types of agencies supported. Two of the 9-1-1 centers are well established, each having existed in a consolidated model for more than 20 years; one is newly formed, completing the last phase of its consolidation as this research was conducted. Current staffing ranges from a low of 55 to a high of 160 total employees, each comprising operational and administrative/support positions. The 9-1-1 centers provide 9-1-1 call-taking and dispatch services for groups of local public safety agencies, ranging in size from 10 to 21 agencies. They serve a mixed urban and rural population ranging from 266,000 to 743,000 people. All centers operate year-round, 24 hours per day, and are staffed by personnel assigned to 10-hour and/or 12-hour shifts. All three centers are interdisciplinary in nature, providing services for all three public safety disciplines: law enforcement (law), fire service (fire), and emergency medical services (EMS). Two centers involved jurisdictions within a single county, while one covered two counties.

## **2. Findings**

There was general agreement between all interview participants that the consolidation of 9-1-1 centers improves efficiency and reduces costs, at least in the long term. At times, supporting these claims with corroborative quantitative data proved challenging, due to a lack of historical data on “pre-consolidation” costs, the difficulty of applying a standardized metric applicable across agencies, and the time constraints of this research project. However, the primary interview data and secondary quantitative data is judged to be valid and reliable. The primary data, although qualitative and subject to some level of bias, was obtained from subject matter experts; leaders in the field of 9-1-1 emergency communications, each with many years of experience. The findings that have resulted herein are valuable as they provide first-hand insight into the

phenomena of 9-1-1 center consolidation. Each of the six key findings is discussed below.

**a. *Interagency Collaboration and Resource Sharing May Be an Important Precursor to 9-1-1 Center Consolidation; and, the Phenomena of 9-1-1 Center Consolidation Itself May Spawn Additional Collaboration and Resource Sharing***

(1) Pre- and Post-Consolidation Collaborative Efforts. Two of the case studies revealed a shared, countywide public safety radio system had already been implemented prior to the 9-1-1 center consolidation. In one of those cases substantial law enforcement collaboration, with more than 25 partner agencies, had occurred in support of a shared records management system. All three case studies revealed that the 9-1-1 center consolidation spawned some level of additional interagency collaboration and cooperation. This involved the post-consolidation development of a shared (in-car) mobile data computer (MDC) system (three case studies), the implementation of a shared law enforcement records management system (RMS) (three case studies), and enhanced cooperation toward common policy development (one case study).

The enhanced cooperation on policy development is associated with Portland's Bureau of Emergency Communications (BOEC), where the director advised member agencies have used the BOEC's discipline-specific dispatch committees and user board, part of its governance structure, as a platform to discuss and develop standardized policies outside of those that specifically pertain to BOEC operations. For example, two of the fire agencies have standardized many of their response protocols for various types of emergency incidents. These policy discussions began as an effort to standardize BOEC dispatch procedures, but carried over to other areas beyond just the initial dispatching of field units. BOEC Director Turley summed up the idea best by saying, "They [two Fire agencies] are working together well and cooperating on

calls. I'm not sure which came first, the cooperation or the consolidation, but it is working for them.”<sup>139</sup>

In the case of Charleston County Consolidated 9-1-1 (CCC911), the collaboration of jurisdictions developed through the 9-1-1 center consolidation led to the ability for the county to obtain grant funding through the Department of Homeland Security to stand up a regional in-vehicle MDC system. This system is somewhat unique in that it is inter-disciplinary—used by police, fire, and EMS in the county. The ability to implement such a data system across disciplines was due to the implementation of a regional computer aided dispatch (CAD) system, which was a direct result of the consolidation. Therefore, the consolidation was a key factor to both the funding and interoperability of this new system; it simply would not have happened but for the 9-1-1 center consolidation. Further, CCC911 is currently facilitating the acquisition of a shared RMS for its law enforcement member agencies, an ancillary system that serves functions outside of core 9-1-1 center functions. As Director Lake explained when discussing the technology improvements, “Other than the [pre-existing] regional radio system, everything else is a result of consolidation.”<sup>140</sup>

All three case studies revealed evidence of inter-jurisdictional cooperation and resource sharing both before and after 9-1-1 center consolidation, so there may be some inferences to be made as to how these factors interrelate. However, it remains uncertain if a regional atmosphere of collaboration is a required precursor to 9-1-1 center consolidation, if 9-1-1 center consolidation itself actually increases the likelihood of further collaboration, or if it is perhaps some combination of the two.

(2) Improved Communications Interoperability and Increased Regional Information Sharing. As indicated in Figure 5, all three case studies produced

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<sup>139</sup> Turley, interview.

<sup>140</sup> Lake and Burrell, conference call.

data supportive of a direct benefit of consolidation to communications interoperability and interagency public safety information sharing.

Although a common public safety radio system has not emerged in Santa Cruz County (CA), interoperability has been enhanced because of the Santa Cruz Regional 9-1-1 (SCR911) consolidation. For one, all agencies now use “plain language” during radio communications as opposed to the traditional agency-specific “9-code” or “10-code” styles of communications, which encourages jargon and replaces many commonly used words with numerical codes. SCR911 is also responsible for moving both fire and EMS onto a single radio channel, so full interoperability exists between those two disciplines. Additionally, radio dispatchers for the various jurisdictions are now co-located and in direct communication. As General Manager Dennis Kidd explained:

There is zero delay in communications for incidents that cross over or involve multiple jurisdictions. The other agency’s dispatcher is not miles away from you, requiring a phone call to communicate and coordinate; she is 4-feet from you, already listening and seeing the information through CAD. Also, officer safety is improved because if an officer is injured Fire [medical services] is dispatched immediately without anyone even asking—no delay.<sup>141</sup>

SCR911’s shared CAD system has increased interagency data sharing capabilities, which extends into the field through its ancillary MDC system. SCR911 has also resulted in increased data sharing between local police agencies through the implementation of a shared RMS. At the request of the police agencies, SCR911 facilitated the selection, purchase, and installation of the new RMS and now houses and maintains the system. The cost is separated from the SCR911 general budget and shared only between the RMS user agencies. This system allows for the immediate sharing of law enforcement information between these user agencies, which was not possible prior.

The Portland region enjoys a high level of public safety radio interoperability and data sharing capability, although this could not be attributed

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<sup>141</sup> Kidd, interview.

solely to the Portland BOEC consolidation. The region's shared radio system was developed by a separate City of Portland bureau, independent of the BOEC consolidation effort. An existing regional, shared law enforcement RMS is currently being upgraded and expanded by this same bureau. BOEC itself has acquired and installed a powerful, modern CAD system that provides data interoperability for its user agencies. This is the one shared system that can be directly attributed to the BOEC consolidation and provides enhanced data interoperability.

The CCC911 consolidation is associated with several direct benefits to regional radio interoperability and interagency data sharing. Although a shared public safety radio system had been established prior to the CCC911 consolidation, two agencies were not using the system and still operating on independent radio systems. Those two agencies went up on the shared radio system when they were consolidated into CCC911. As to data-sharing benefits, CCC911 is directly responsible for several improvements:

- Regional, cross-disciplinary MDC system
- Common CAD system
- Shared Fire RMS
- Currently developing a shared law RMS
- Providing support for a data network that connects its member agencies to state and federal partner agencies

Finally, through its Dispatch Board, CCC911 member agencies have standardized radio communications policies and users now use "plain language" over the radio that eliminates agency- and discipline-specific jargon.

***b. Consolidation Requires a Project Champion and Support from a Coalition of Top Administrators and/or Elected Officials***

The Portland BOEC case study revealed very little data as to the original consolidation efforts and process, as this center has existed in some consolidated form for nearly 40 years. However, the "younger" SCR911 and CCC911 case studies each revealed data relative to how the 9-1-1 center

consolidation efforts began and progressed to fruition. In each of these two cases, there were clear lead agencies and figures that “drove” the initial consolidation effort. Additionally, the consolidations were developed from the “top down.”

The “project champions” of the SCR911 consolidation effort were top executives of two local government organizations: the Santa Cruz County chief administration officer (CAO) and the city of Santa Cruz city manager (CM). These two built a coalition of support between the four original member jurisdictions. It was this group of chief executive officers, not the public safety department heads, which drove the concept of 9-1-1 center consolidation to fruition. There was very little support from department heads. Perceived as a threat to his level of control, the county sheriff was strongly opposed to the effort; even campaigning against the project as it developed and leading subversive efforts to sabotage the new consolidated center’s success.<sup>142</sup> The primary motivations for this consolidation effort were cost savings and operational efficiency. The effort gained additional support just after the 1989 Loma Prieta earthquake, as officials recognized a need to improve the overall coordination of emergency communications and response during catastrophic events.

The CCC911 consolidation effort was led by a local police chief. He formed a coalition of support amongst all police chiefs in the region and gained the full support of his mayor. The mayor, in turn, garnered the support of all other mayors within the county and the elected members of the county council. Thus, there was very broad, high level support for 9-1-1 center consolidation across all jurisdictions. Unlike SCR911, the primary motivation for consolidation in Charleston County was improved quality of service. When asked if cost savings was a consideration, CCC911 Director James Lake stated, “If money was a

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<sup>142</sup> Ibid.

consideration, it was the least of considerations. It was really about service improvement, interoperability, and information sharing.”<sup>143</sup>

### **c. Cost Efficiency Realized through Economies of Scale**

Economies of scale are the overarching dimensions that emerged from this research and analysis. Economy of scale has been defined as simply “the cost advantage that arises with increased output of a product.”<sup>144</sup> Further, economy of scale has been described as “a reduction in the cost of producing something (as a car or a unit of electricity) brought about especially by increased size of production facilities.”<sup>145</sup> Larger organizations can often realize economy of scale in various forms, such as more efficient production, increased purchasing power, and access to lower cost financing. Within the context of 9-1-1 centers, this concept relates to the potential cost advantages larger centers have over smaller centers, and speaks to one area of benefit possible through consolidation.

Data across all three case studies support what previous literature suggests: the primary generalized motivations behind 9-1-1 center consolidation are (1) cost savings and/or (2) improved quality of service. With regard to monetary savings, the data substantiates that the SCR911 consolidation saved money. Namely, SCR911 is able to provide 9-1-1 dispatch services with fewer personnel than would be required without consolidation; an estimated 60% fewer, according to the director. Cost efficiency was also realized with regard to technology and personnel resources. SCR911 General Manager Dennis Kidd provided context for the benefits realized through economies of scale:

In 1996, centers here were still using handwritten cards for dispatching. They simply could not afford a modern CAD system.

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<sup>143</sup> Lake and Burrell, conference call.

<sup>144</sup> Investopedia, s.v. “economies of scale,” accessed January 9, 2014, <http://www.investopedia.com/terms/e/economiesofscale.asp>.

<sup>145</sup> Merriam-Webster Online, s.v. “economy of scale,” accessed January 9, 2014, <http://www.merriam-webster.com/dictionary/economy%20of%20scale>.

Through consolidation and the resulting economies of scale, we got a state-of-the-art CAD that does not cost each agency that much because they are sharing the cost. Also, the economy of scale in human resources is a benefit. For example, I now have six or seven people on duty. If there is a significant event in any one jurisdiction, I have all of those personnel to draw upon for support. If I am in a small center with only two or three people on duty, where I am going to get the extra people I need to handle that incident? That is the beauty of consolidation—everyone is in the same room and can help one another out as needed.<sup>146</sup>

Additionally, SCR911 recently expanded to take over 9-1-1 dispatch services for jurisdictions within neighboring San Benito County. This recent consolidation effort provided current and accurate data as to the cost of 9-1-1 dispatch services before and after consolidation. Data revealed the “outsourcing” of 9-1-1 dispatch services to SCR911 directly resulted in a 64% reduction in costs for San Benito County. This is one valid, quantitative measure that demonstrates consolidation directly resulted in cost savings for these agencies. This supports the qualitative assessments made by all interview participants that a single, larger 9-1-1 center can provide services in a more cost efficient manner than a group of individual 9-1-1 centers within the same region.

The motivation behind the creation of CCC911 had little to do with cost reduction; the primary motivating factor for consolidation was improving the quality of service across all jurisdictions within the county. Charleston County assumed all costs of operating the new consolidated Center. In this sense, the county incurred *increased* costs while the smaller participating agencies *eliminated all costs* for 9-1-1 dispatch services. However, when considering all jurisdictional budgets as a whole, the consolidation was cost-neutral. Quantitative data contained within an objective pre-consolidation feasibility study identified the actual costs borne by each agency to operate its independent 9-1-1 Center. Subsequently, to fund the transition process, each member agency contributed its identified 9-1-1 dispatch service budget (and all existing personnel) to the

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<sup>146</sup> Kidd, interview.

county in the first year, followed by half that amount in year two. For year three and beyond, these agencies paid nothing and the county assumed all operating costs. Through this upfront “pooling” of financial resources, the county was able to fund the design and construction of a brand new facility, acquire and install a powerful new CAD system, and stand up the consolidated center. So, while the consolidation effort was “cost-neutral,” the outcome was significantly greater than would be possible by any one agency acting alone; which is, again, an example of an economy of scale cost benefit realized directly because of consolidation. Director James summarized his view of these results by saying, “We have come a long way in a short amount of time - improving quality while keeping the same price tag.”<sup>147</sup>

All three consolidated 9-1-1 centers have modern technology systems. The combined financial resources available through consolidation allowed each center to acquire high-cost, powerful computer aided dispatch (CAD) systems and some level of a regional, standardized mobile (in-car) computer system; thus, improving the quality of 9-1-1 dispatch services and data interoperability across all participating agencies. Without the sharing of costs through consolidation, the participating agencies would each either bear the full cost alone, likely installing disparate systems of varying quality, or simply be unable to acquire a modern system. Even in the case of Portland’s BOEC, where the city of Portland would likely have the financial means to upgrade its CAD system independent of a consolidated dispatch model, the city still benefits from the sharing of cost for this common technology need. The smaller member agencies likely could not afford this technology on their own. Each benefitted by gaining access to the technology through the cost sharing model with relatively small increases to their rates for service. The region as a whole likely benefitted by the enhanced data sharing capabilities availed through a single, shared system.

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<sup>147</sup> Lake and Burrell, conference call.

Two case studies revealed a more direct benefit from consolidation in the form of improved technology; the consolidations resulted in the immediate acquisition and implementation of modern, advanced 9-1-1 dispatch technology that was not present prior to consolidation. To emphasize this point, the SCR911 director stated, “Geographically, we were just 17 miles from the Silicon Valley; technologically, we were 1,000 years behind the Silicon Valley.” He was referring to the lack of modern technology in 9-1-1 centers within Santa Cruz County before consolidation. None had a CAD system and personnel were still using hand-written cards to manage call processing and dispatch functions. Independently, the agencies within the county simply did not have the financial means to purchase a CAD system. Through the increased purchasing power that resulted from consolidation, both SCR911 and CCC911 acquired new, multi-million dollar systems.

***d. Consolidation Leads to More Focused, Institutionalized Quality Control and Service Improvement Efforts***

Data between case studies revealed a more focused and institutionalized level of quality control and standards-based improvement efforts emerged after the consolidation of 9-1-1 centers. The concepts supporting this generalization included reduced response times, improved training programs, dedicated quality assurance programs, and accreditations.

In all studies, interview participants noted the time required to process 9-1-1 transactions—the time from answering calls to dispatching field units—had been reduced. Each mentioned the primary reason for the improved processing efficiency was the centralization of all 9-1-1 call handling. Prior to consolidation, with separate 9-1-1 centers often divided by discipline, primary call centers were forced to answer, preliminarily screen, then transfer fire and EMS 9-1-1 calls to secondary centers. The consolidation of all 9-1-1 centers eliminated the delays caused by this transferring of calls; all calls, regardless of discipline, are now processed at the initial point of receipt.

The SCR911 director described this centralized processing as having reduced the time from answering the 9-1-1 call to dispatching the fire services response by 20–30 seconds. He explained that as soon as a fire dispatcher (now in the same room with the call-taker) becomes aware of a call-for-service being answered, she will broadcast information over the radio and “tone” the appropriate fire agency, even before the call-for-service information is routed to the dispatch workstation through the CAD system.<sup>148</sup> This was simply not possible prior to consolidation.

The change has been even more substantial for CCC911. This consolidated 9-1-1 center has specifically tracked improvement in call processing and response times. The response times for EMS have lowered from 10 minutes to 8 minutes since the CCC911 consolidation, a significant drop as EMS calls are time critical. Reductions in response times literally save lives by speeding the introduction of critical care during a medical emergency.

All interview participants expressed the belief that internal training programs have improved as a result of consolidation. While the improvement of training programs may not have a direct correlation to consolidation, being that any 9-1-1 center seemingly could take similar steps to improve training quality, the cases examined here revealed training standards for the region were raised because of the consolidation. For example, the director of CCC911 explained that, prior to consolidation, there were two 9-1-1 centers in the county that were “really good at what they did; they had what they needed.”<sup>149</sup> However, the rest were short-staffed and undertrained. The consolidation is what provided the necessary staffing and support to improve training throughout the county.

All three case studies revealed organizations committed to monitoring and improving quality of service, with each having formalized quality assurance

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<sup>148</sup> “Tone” here refers to the audible alert that notices fire station personnel as to an incoming emergency call.

<sup>149</sup> Lake and Burrell, conference call

programs. Two of these case studies demonstrated a correlation between consolidation and a resulting increase in dedication to quality assurance.

Both SCR911 and CCC911 have developed stronger quality assurance programs since consolidation as compared to what existed pre-consolidation. The SCR911 Quality Assurance/Quality Improvement program involves one telecommunicator who, as a part of her regular job, examines the overall response and service levels provided. This includes developing metrics and standards, comparing individual incidents against those standards, and then discussing with the involved employee(s) how they performed. While the program involves only one lead employee, the SCR911 director advised no such quality assurance measures were in place within any of the pre-consolidation 9-1-1 centers.

CCC911 operates a quality assurance program with a dedicated staff consisting of one quality assurance supervisor and three quality assurance specialists. This unit is managed by a support services manager who also oversees the training unit, so quality assurance is organizationally integrated with training programs. The CCC911 deputy director, who was employed by the county's 9-1-1 center long before consolidation, provided firsthand knowledge of how the current quality assurance program compares to pre-consolidation quality assurance efforts. She indicated the county had a limited quality assurance program, which was developed in-house and consisted of just one employee. The current program is much more robust and based upon International Academies of Emergency Dispatch (IAED) industry standards. Deputy Director Burrell emphasized, "We had one person who did quality assurance, but that was not their primary job. And, it was basically home-grown quality assurance. We didn't have anything like what the academy [IAED] provides."<sup>150</sup>

Two of the 9-1-1 centers studied have attained, or will soon attain, public safety communications accreditation from the Commission on Accreditation for

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<sup>150</sup> Ibid.

Law Enforcement Agencies (CALEA). SCR911 garnered CALEA accreditation in 2004 and again in 2010, and is currently the only CALEA accredited 9-1-1 center in California.<sup>151</sup> CCC911 is in the process of attaining CALEA accreditation. CCC911 has already been accredited by IAED for its fire and EMS call-taking and dispatching operations.<sup>152</sup> According to CCC911 Director James Lake:

We are exceeding all national standards for call pick-up. Every time the phone rings, we pick it up within the minimum standard time frame. And, we are closing in on national dispatch standards. We are actually dispatching to get EMS out the door more quickly. All of those things weren't achieved prior to consolidation. In fact, those were standards that in most cases couldn't be achieved.<sup>153</sup>

Such accreditations demonstrate agencies' adherence to recognized industry standards for training, policies and procedures, and call processing and dispatching operations. Each of the interview participants from these 9-1-1 centers attributed their ability to achieve accreditation directly to consolidation, facilitated by its resulting increased focus on improved training and quality of service, and supported by the increased level of financial and personnel resources.

The common denominator for each of the benefits described above is an increased availability of financial resources which allows for the dedication of personnel and funds toward training, quality assurance initiatives, and accreditation requirements. Large, well-funded single-jurisdiction 9-1-1 centers might very well have the financial resources to finance these efforts, but this is more of a challenge for smaller jurisdictions with more limited budgets. For example, in the case of Portland's BOEC member agencies, the largest is the city of Portland with an overall legal budget of \$3.44 billion.<sup>154</sup> The next largest member's budget, at \$384 million, is only approximately 11% that of

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<sup>151</sup> "SCR911 Accreditation."

<sup>152</sup> "Consolidated Dispatch Gains Accreditation," accessed January 13, 2014, <http://www.abcnews4.com/story/20648571/consolidated-dispatch-gains-accreditation>.

<sup>153</sup> Lake and Burrell, conference call.

<sup>154</sup> "Adopted Budget, City of Portland, Oregon: Fiscal Year 2013–14.."

Portland's.<sup>155</sup> The two small fire district members' budgets are much smaller yet. Budget disparity of this magnitude supports the interview participants' belief that smaller member agencies are benefitting from a more robust training program through the consolidated model than would be otherwise possible, simply due to fiscal constraints. Without the consolidation, separate 9-1-1 centers would likely continue to provide disparate levels of training for their personnel, resulting in disparate levels of service provision across the region.

**e. *Improved Resilience and Surge Capacity***

Surge capacity is commonly used to reference the ability for hospitals to meet the sudden increased demands of a mass casualty event.<sup>156</sup> However, the concept is applicable to any system subject to sudden, extreme increased demands for service. All three case studies yielded data supportive of the benefit of consolidation to surge capacity.

(1) Centralized and Increased On-duty Staffing Levels. In all case studies, consolidation resulted in a larger number of personnel being on duty at any given time within a single 9-1-1 center, as opposed to personnel being thinly spread between separate centers. All interview participants noted the benefit and flexibility this provided to large scale emergency incident management. If a large scale incident happened anywhere within the region, these consolidated centers have a greater capacity to manage the surge in demand because of the increased number of personnel on hand. While the smaller, single-jurisdiction 9-1-1 center might be overwhelmed by the increased call volume and dispatching demands, the multi-jurisdictional center with a larger staff on hand is better poised to handle that surge. For example, prior to the SCR911 consolidation the City of Watsonville (CA) operated its own 9-1-1 Center, which was staffed at any

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<sup>155</sup> "Adopted Budget for Fiscal Year 2013/14," city of Gresham, accessed December 27, 2013, <https://greshamoregon.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=283971&libID=283992>

<sup>156</sup> Samantha K. Watson, James W. Rudge, and Richard Coker, "Health Systems' 'Surge Capacity': State of the Art and Priorities for Future Research," *Milbank Quarterly* 91, no. 1 (2013): 78–122.

given time by just 2–3 telecommunicators. After consolidation, any large emergency incident occurring in Watsonville was supported by SCR911’s full complement of 8–10 telecommunicators. For all three case studies, a benefit of increased surge capacity was directly attributable to consolidation.

The increased efficiency with regard to the sharing of common resources—facility, technology, personnel—and overall increased size of the consolidated organizations may have the added benefit of dampening the effect of budget fluctuations. Two case studies, SCR911 and Portland’s BOEC, revealed the recent downturn in the economy resulted in 9-1-1 center budget reductions. However, because the cost to operate the consolidated centers is spread between multiple jurisdictions, with varying tax bases, the impact was less significant than it might be to any single jurisdiction. Both centers have maintained relatively stable levels of personnel over both the long and short term. For the remaining case study, CCC911, the consolidated center has yet to experience any significant budget fluctuations as the center is still very new.

(2) Personnel with a Broader, Interdisciplinary Skill Set. Data across all three case studies revealed consolidation was directly responsible for the development of a more highly trained workforce with a broader skill set. In each case, prior to consolidation there existed separate, discipline-specific groups of emergency communications personnel. In Santa Cruz County (CA) and Charleston County (SC) there were multiple 9-1-1 centers separated by discipline—police, fire, emergency medical services (EMS). Employees within each center were capable of handling 9-1-1 dispatch services for only one or two specific disciplines. Portland’s BOEC has always provided services for multiple jurisdictions, but started as a law enforcement communications center only. Fire and EMS dispatching was added later. Therefore, all three of these consolidated 9-1-1 centers moved from organizations that provide more narrowly focused, discipline specific 9-1-1 dispatch services to a single organization that provides the full range of 9-1-1 dispatch services. This has resulted in the emergence of highly developed employee training programs to match the complexity of the

interdisciplinary nature of the position, something each center has successfully accomplished.

Having all telecommunicators “cross-trained” and capable of handling any type of emergency call allows for more efficient personnel management and a more resilient organization. For example, Portland’s BOEC director discussed how dispatchers are able to seamlessly move between police, fire, and EMS radio dispatching stations; something they often do even within a single working shift. This allows supervisors more flexibility with how personnel are deployed, whether for managing break periods, unexpected leaves of absence, or the sudden increased service demands of one discipline.

***f. Organizational Behavior Issues Present Challenges to the Successful Consolidation of 9-1-1 Centers***

A common theme of challenges associated with transitional issues for employees emerged from the research. These issues were less pronounced in the case of Portland’s BOEC, again because of this organization’s long history as a consolidated, inter-disciplinary 9-1-1 center. However, all three case studies revealed that consolidation likely results in, at least in the near-term, additional challenges to employee training, hiring, retention, and morale.

As the most recent consolidation, the CCC911 case study provided the most contemporary data as to organizational behavior challenges associated with consolidation. All employees from the separate 9-1-1 centers were offered employment with the consolidated center. In so doing, they would leave their current agency and become employees of Charleston County. The consolidation process was done in stages, with one agency added at a time. Coming from existing 9-1-1 centers, each with its own unique employee culture, organizational identity, and discipline-focused work environment, these groups of employees experienced considerable stress while transitioning into the new organization. Many more than anticipated simply refused to complete the transition, either resigning immediately or soon after. Some were negatively affected by changes

to pay and benefits. Only approximately 50% of the existing employees successfully transitioned into CCC911. Deputy Director Burrell put the organizational behavior challenges into context:

I think originally, when we first consolidated, it was as if we were just two co-located PSAPs—EMS and the sheriff's office. There might as well have been a wall built between the two. You would not think they were even located in the same building, because they did not work together whatsoever, even though many of the calls we received on the sheriff's office side had to be transferred to EMS for medical services. It was difficult to get them on board, but the cooperation did eventually come. But, this has been the challenge with each consolidation of an agency.

We have never received the full complement of employees. So, obviously that's very disconcerting to us—that people do not want to transition. Although, once they get here they seem to enjoy the structure that we have in our center...as far as the work environment is concerned, they realize that this is much better than what they had with their previous agency. Just making the change itself is painful.<sup>157</sup>

However, not all examples of employee transition are negative. An unanticipated benefit noted by the CCC911 Deputy Director was that, in her view, some existing 9-1-1 center employees have exceeded all expectations of the transition. Some who were initially opposed to the idea of transitioning into the new consolidated organization have since become its most ardent supporters and change agents. Several have moved into supervisory positions or other administrative roles and provided substantial support for the full completion of the consolidation effort.

SCR911 began with a similar approach toward existing employees; all employees of the separate 9-1-1 centers were offered employment with the new organization. General Manager Dennis Kidd described organizational behavior issues that presented challenges during this early period of consolidation that were similar to those present during the CCC911 consolidation, including a

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<sup>157</sup> Lake and Burrell, conference call.

higher than expected rate of employee attrition and difficulty with employee transition. He described the transitional issues resulting in the organizational culture being “really bad for the first few years.”<sup>158</sup> As an example, some dispatchers continued to identify with their previous agencies—holding on to the organizational culture and ways of doing business they had known for many years. They sometimes resisted working at a different agency’s dispatch station in the new consolidated center, even though they were no longer employed by any of those individual public safety agencies. Some also were disgruntled over changes to pay and benefits. Over the years, these issues have faded and a new organizational identity emerged, facilitated by the development of a brand new hiring process and improved training program. However, the early period of transition was very challenging.

## **B. LIMITATIONS**

This study was limited by the relatively small sample size; only three case studies were conducted. This presents challenges to the validity of applying generalizations made here to the larger population as a whole. For this reason, the findings, conclusions and recommendations of this thesis are best understood within the individual context of these three specific case studies. The environment within which any consolidated 9-1-1 center is created and operates undoubtedly present differing variables, making each set of circumstances unique. The intention here is that local government leaders considering consolidation might consider these findings and recommendations as they apply within their own emergent environment.

The substantial reliance upon qualitative data provided by current directors of consolidated 9-1-1 centers is also a limitation of this study. Interview participants would each seem to have inherent bias by the desire to represent their own organizations as “successful,” emphasizing the positives and mitigating the negatives through their responses to the semi-structured interview questions.

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<sup>158</sup> Kidd, interview.

Additionally, having invested their time and effort into making consolidation “successful” for their organization, each is at risk of some level of cognitive dissonance; making cognitive adjustments to justify their actions. When possible, assertions made during interviews were corroborated against quantitative data from separate sources. However, this proved challenging for several primary reasons: (1) the time limitations of this study did not allow for the in-depth analysis of budget data across multiple agencies; (2) budgets for 9-1-1 centers often include differing variables, making valid cross-comparison time consuming and complex; (3) a general lack of standard metrics applicable across 9-1-1 centers; (4) lack of historical data related to pre-consolidation budgets for the long-established centers.

Another weakness of this study was its broad scope. Because of the number of dimensions explored, each interview lasted between one hour and one hour, 45 minutes. Difficulty arose in fully examining each dimension with interview participants as the length of time for the interview became a factor. Each dimension proved more complex than anticipated and required lengthy discussion to achieve the desired level of detail in the data. Fewer dimensions, with a more narrowly-focused set of structured interview questions, would have allowed for more in-depth examination; perhaps increasing the validity of the data and subsequent analysis.

### **C. RECOMMENDATIONS FOR FUTURE RESEARCH**

Based upon the results of this study, there are several recommendations for future research. First, additional case studies of consolidated 9-1-1 centers are needed to support or weaken these findings, potentially increasing the validity of generalizations as applied to the overall population. Second, future studies designed with a more narrow focus on any of the various evaluative dimensions employed here may result in a deeper understanding of the effect consolidation has upon each. Third, research is needed to accurately quantify costs pre- and post-consolidation. This research will require the availability of

accurate historical and contemporary budget data, sufficient time, and specific analytical expertise relative to public agency budgeting.

#### **D. CONCLUSION**

The analysis process employed during this study, depicted in Figure 5, produced 6 key findings:

- Inter-jurisdictional Collaboration and Resource Sharing may be an Important Precursor to 9-1-1 center Consolidation; and, the Phenomena of 9-1-1 Center Consolidation itself may spawn additional Inter-jurisdictional Collaboration and Resource Sharing
- Consolidation Requires a Project Champion and Support from a Coalition of top Administrators and/or Elected Officials
- Cost Efficiency Realized through Economies of Scale
- Consolidation Leads to More Focused, Institutionalized Quality Control and Service Improvement Efforts
- Improved Resilience and Surge Capacity
- Organizational Behavior Issues present Challenges to the Successful Consolidation of 9-1-1 centers

From these findings, three major conclusions can be drawn: (1) the consolidation of 9-1-1 centers can result in increased cost efficiency through economies of scale; (2) regionally, 9-1-1 center consolidation may standardize and raise the quality of service provided across disciplines and jurisdictions; and (3) in the near-term, organizational behavior issues present significant challenges for the newly consolidated 9-1-1 center.

This study revealed that 9-1-1 center consolidation allows for the sharing of common public safety emergency communications resources between multiple agencies. These resources include facilities, communications infrastructure, and, most importantly for cost efficiency, personnel. This pooling and sharing of resources creates opportunities for cost savings and improved operational efficiency through its resulting economies of scale, especially when the consolidation combines small- to mid-sized 9-1-1 centers.

At the most basic level, the increased purchasing power a group of agencies has over that of a single agency provides a direct benefit of consolidation; allowing consolidated 9-1-1 centers to acquire advanced technologies that any of the member jurisdictions might not be able to afford alone. For operations, the increased number of personnel available in a larger 9-1-1 center has the dual effect of increasing surge capacity and allowing for the more efficient processing of regional workload. The primary factor for realizing these benefits is increased financial resources; infusing additional money into the system would seem to provide the same opportunity for economy of scale benefits to *any* 9-1-1 center, whether consolidated or not. However, given the limits of local public safety budgets for some jurisdictions, consolidation provides a means to attain economy of scale of benefits likely only available to the largest, well-funded independent 9-1-1 centers.

This study also revealed that 9-1-1 center consolidation standardizes the service provided across member jurisdictions across all disciplines—law, fire, and EMS. This standardization generally raises the quality of service for some or all of the member agencies. Through its governance structure, the consolidated 9-1-1 center is held accountable to all of its member agencies. In this way, the service provided becomes consistent and standardized throughout the region. Additionally, the increased size of the consolidated 9-1-1 center budget allows for improvements to training programs, development of quality assurance programs, and the ability to attain accreditations from recognized professional organizations. Regional standardization alone, of course, does not equate to improved quality of service. However, when consolidated centers take advantage of the service quality improvement opportunities availed through increased common resources, the standardize level of service built into the model becomes a standardized level of *higher quality* service.

Finally, this study revealed the most challenging aspects of 9-1-1 center consolidation involve organizational behavior issues associated with personnel transition. Although examples of positive individual employee transitions were

revealed, established employees of separate 9-1-1 centers generally do not successfully transition into the new consolidated organization at the rates anticipated by project managers, with attrition rates as high as 50% for the most recent transition examined in this study. Possible reasons for this difficulty in transition include negative impacts to pay and benefits, loss of identity with the previous organization, higher skill set requirements of the new interdisciplinary position, and changes to working conditions and location. These challenges seem to be more pronounced during the early years of consolidation and may fade with time as the organization develops and solidifies its unique organizational identity.

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# APPENDIX A. INTERGOVERNMENTAL AGREEMENT— CHARLESTON COUNTY CONSOLIDATED 9-1-1 CENTER

## INTERGOVERNMENTAL AGREEMENT CHARLESTON COUNTY CONSOLIDATED 9-1-1 CENTER 12/31/07

**This Agreement**, effective as of January 22, 2008, made and first entered into by and among the undersigned governmental jurisdictions to include Charleston County, City of North Charleston, Town of Mt. Pleasant, City of the Isle of Palms, City of Folly Beach, the St. Johns Fire Department, St. Andrews PSD Fire Department, and the James Island PSD Fire Department.

### **WITNESSETH:**

**WHEREAS**, jurisdictional entities within Charleston County formed the Charleston County Consolidated Dispatch Committee, including multi-jurisdictional representation from law enforcement, fire and EMS entities within Charleston County; as well as a County Administration representative and a federal agency representative; and this committee has been exploring the benefits of consolidating public safety communications within Charleston County; and

**WHEREAS**, a Countywide Emergency Communications Services Consolidated Feasibility Study was completed in April, 2007, based upon a scope of work developed by the Consolidated Dispatch Committee and paid for by a Homeland Security grant and seven jurisdictions; and

**WHEREAS**, the Feasibility Study found that the current emergency call processing is inefficient, potentially detrimental, involving 5 Public Safety Answering Points (PSAPs), 1 Secondary PSAP, and 4 Dispatch-only centers, and that 9-1-1 emergency calls frequently have built-in delays involving transfers to other centers; and

**WHEREAS**, the jurisdictions and residents of Charleston County would benefit in terms of life safety and efficiency of service from a consolidated 9-1-1 Public Safety Answering Point (PSAP) providing services to Charleston County and the municipalities and fire protection departments within Charleston County; and

**WHEREAS**, the undersigned governmental jurisdictions wish to agree to the establishment and maintenance of a consolidated Public Safety Answering Point (PSAP), to be hereafter known as "Charleston County Consolidated 9-1-1 Center"; and

**WHEREAS**, the establishment of such PSAP will provide improved police, fire and emergency medical service communications within the boundaries of the participating jurisdictions (the "Consolidated Service Area"), together with such other jurisdictions as may hereafter contract with the undersigned for communications services; and

**WHEREAS**, the establishment and maintenance of such PSAP will be of substantial benefit to the citizens of the undersigned governmental jurisdictions and the public in general;

**NOW THEREFORE**, as an exercise of the police power and authority granted by the Constitution and laws of the State of South Carolina, and in consideration of the mutual terms, covenants and conditions set forth herein, it is hereby agreed and

covenanted among the undersigned as follows:

**1.0 PURPOSE:** This Intergovernmental Agreement to establish the Charleston County Consolidated 9-1-1 Center contains the following organizational objectives:

- 1.1 To promote the health, safety and general welfare of the citizens throughout Charleston County. To that end, the parties wish to continually improve procedural efficiency and technical capabilities of emergency call-taking, emergency call processing, and all emergency response communications.
- 1.2 To save lives by improved call processing time which reduces response times to emergency incidents.
- 1.3. To improve safety to emergency responders.
- 1.4 To effectively receive calls for routine and emergency assistance, based on structured call intake protocols, and coordinate response resources to those calls for service based on the needs of the caller and the direction of field response agencies.
- 1.5 To provide all participating agencies with a single contact point for the notification of emergencies and receipt of emergency assistance requests, and for the control of coordinated dispatch for law enforcement, fire and EMS.
- 1.6 To bring about increased efficiencies and coordination of communications and emergency response services, including the use of the National Incident Management System and the National Response Plan. These communications improvements are intended to impact emergency response for all types of scenarios that are generally broken into three categories:
  - A) Emergencies that occur daily in the community: those "typical" crimes, fires, and medical emergencies.
  - B) Local, small scale disasters, such as a school bus accident.
  - C) Large scale and/or national level disasters, such as terrorist attacks or natural disasters.
- 1.7 To provide the public and field response agencies with highly trained, certified and/or credentialed 9-1-1 employees who strive to provide the best service possible to all parties involved.
- 1.8. To set the goals of 1) meeting NFPA's 1221 standards, 2) meeting National Emergency Medical Dispatch (EMD) standards for Accreditation and attaining this accreditation, and 3) meeting CALEA's Standards for Public Safety Communications Agencies and attaining CALEA accreditation.
- 1.9 To provide funding to ensure the appropriate level of service to all parties involved as defined by user agencies by establishing funding mechanisms and defining the budget process for the center.
- 1.10 To provide for operational oversight from a "Consolidated Dispatch Board"

of emergency response leaders.

- 1.11 To ensure accountability to the field response agencies by creating User Groups which provide feedback to the Consolidated Dispatch Board.
- 1.12 To provide a mechanism for the addition or withdrawal of parties to the Agreement.
- 1.13 To establish an alternate center to serve as a backup, overflow and training site, and as a secondary location where emergency dispatchers will function in the event that they need to evacuate the primary Consolidated 9-1-1 Center.

**2.0 DEFINITIONS:** As used in this Agreement the following words and phrases shall have the meanings indicated unless the context clearly requires otherwise:

- 2.1 "PSAP" (Public Safety Answering Point) shall mean the facility housing the equipment and personnel that provide 9-1-1 call answering, processing and dispatching services.
- 2.2 "9-1-1 Services" shall mean those services and equipment to answer 9-1-1 calls on a 24-hours-per-day basis.
- 2.3 "Other Services" shall mean services related to emergency service or jurisdictional communications provision, such as administrative call-taking.
- 2.4 "County" shall mean Charleston County.
- 2.5 "E9-1-1" (Enhanced 9-1-1) shall mean the emergency communications system which connects the public to emergency response.
- 2.6 "Participants" shall mean the parties to this Agreement and such other entities as become parties in the future.
- 2.7 "Charleston County Consolidated 9-1-1 Center" shall mean collectively the parties to this Agreement in their capacity as providers and/or receivers of 9-1-1 services; or, as the context may require, the system of providing such services; or the facility housing the countywide 9-1-1 operations.
- 2.8 "Consolidated Dispatch Board" shall mean the multi-jurisdictional Board of Law Enforcement, Fire and EMS leaders established to guide the establishment and operations of the Center.

**3.0 COUNTY TO ESTABLISH A DEPARTMENT OF PUBLIC SAFETY COMMUNICATIONS:** The parties agree that Charleston County, through operational funding as established in Section 9, will establish and maintain a Department of Public Safety Communications which will operate the Charleston County Consolidated 9-1-1 Center. Charleston County will provide the backbone structure to provide important and necessary services such as payroll, employee benefits, facilities maintenance, budget/finance, legal, risk management and procurement. This arrangement provides significant cost efficiencies since the infrastructure and capabilities are in place to provide the administrative and support services to a department serving countywide

needs. The Center Director and all employees of the Center will be County employees, subject to all County personnel policies and procedures.

**4.0 PROGRAMMING AND CONSTRUCTION OF FACILITY:** Charleston County will purchase, lease, or otherwise obtain the use of an existing facility or build a new facility for the purpose of locating and establishing the Consolidated 9-1-1 Center, at the County's expense. Other uses of the land and the building to be used for the Consolidated 9-1-1 Center may also be considered. Construction or renovation of a consolidated dispatch facility and other related capital costs not covered by 9-1-1 fees will be based upon appropriations made at County Council's discretion.

The Consolidated 9-1-1 Center will include at least the following: (1) dispatch area, (2) Director and supervisor administrative offices, technology specialist offices, clerical and reception office space, (3) radio/recording/CAD/9-1-1 technology equipment rooms, (4) storage for inventory, supplies and records, (5) locker room, (6) bathroom/shower facilities, (7) kitchen, (8) lunch/break room, (9) training area, and (10) multi-purpose classroom/conference room.

Charleston County agrees that the existing Joint Communications Center located at the County Public Services Building or other suitable facilities will be available as a backup center in the event that the Consolidated 9-1-1 Center employees must evacuate the primary Consolidated 9-1-1 Center. This will not preclude the County from utilizing this space for other purposes, with the understanding that the space must be secured, maintained, accessible and activated as needed under the primary purpose and use as the Consolidated 9-1-1 Center's alternate/back-up/overflow site. This site may also be used for Consolidated Dispatch training purposes.

**5.0 TRANSITION ISSUES:** The parties agree to cooperate in the many complex aspects of transitioning into the Consolidated 9-1-1 Center. Transition elements include, but are not limited to the following:

- 5.1 There will be continued involvement of the Consolidated Dispatch Board in all phases of the establishment of the Center.
- 5.2 All reasonable attempts will be made to hire a Director during the facility programming phase, subject to the funding agreement as indicated in Section 9. The hiring of the Director shall involve the Board, as indicated in Section 6.
- 5.3 Hiring of employees:
  - A) EMS and Sheriff's Office dispatch employees who meet qualifications standards, at the time of cutover, will be transferred to the new Consolidated 9-1-1 Center. Supervisory and other specialty positions will be filled by the Center Director.
  - B) Subject to the conditions below, the Center Director will hire dispatchers that meet the qualifications standards adopted by the Board, from emergency communications centers of the parties to this agreement. A readiness program to assist current dispatchers to meet qualifications standards will be made available during the establishment phase of the facility. (Readiness training and funding responsibilities as referred to in Sections 9.3 and 9.4.)

- C) Dispatchers must meet the minimum qualifications established for the position, unless they have been hired less than six months before cutover to the Consolidated 9-1-1 Center, in which case they will have a period of six months from cutover to meet the minimum qualifications. All new hire employees will be subject to the County's standard probationary period and all other Charleston County employment policies and procedures.
- D) It is the intent of this Agreement that the hiring of dispatch staff at participating agencies will take place, subject to the pay scales established for the Consolidated 9-1-1 Center, and with existing longevity and position level taken into consideration, among other things. Criteria which may render a participating dispatch center employee ineligible for County employment at the Consolidated 9-1-1 Center include, but are not limited to, the following:
  - Convicted felon or other significant information found on a criminal records check
  - The employee has been determined "not eligible for re-hire" as a Charleston County employee
  - Inability to pass a drug test
  - Inability to pass a basic literacy exam
  - Education level which is not equivalent to a high school diploma or higher

5.4 Individual municipal and agency needs and requests regarding other services such as non-public safety administrative call-taking or other non-emergency communications functions will be determined early in the planning stage and will have specific protocols, training and technology needs established and well-defined. Funding for other services will be as indicated in Section 9.

5.5 Costs for the transition period prior to moving into the Consolidated 9-1-1 Center will be handled as indicated in Section 9.

5.6 A transition plan will be developed by Charleston County working closely with the Consolidated Dispatch Board. Charleston County will establish a transitional budget and be responsible for managing this budget and paying transitional expenses, including but not limited to staffing of Director and other positions identified as needed prior to cutover, dispatcher training course fees (see 5.7 below) and consultant planning assistance. Some transitional funding may come from other participating jurisdictions, and 9-1-1 and grant money will be used wherever possible.

5.7 The staff time (including necessary overtime) involved in the initial Consolidated Dispatch related training of dispatchers hired or anticipated to be hired by the Consolidated 9-1-1 Center Director, will be borne by the participating Centers where they are working prior to the cutover date. Dispatcher training course fees will be borne by Charleston County during the six months prior to cutover to the consolidated 9-1-1 Center. However, fees for supervisory/QA/trainer courses will be paid by Charleston County only when employees have been selected for

supervisory/QA/trainer positions by the Consolidated 9-1-1 Center Director.

**6.0 CONSOLIDATED DISPATCH BOARD:** With the execution of this Agreement, the existing "Consolidated Dispatch Committee" will be disbanded and the "Consolidated Dispatch Board" will be established as follows:

**6.1 Membership:**

Charleston County: 2 (Sheriff & EMS Director)

North Charleston: 2 (Police Chief & Fire Chief)

Mount Pleasant: 2 (Police Chief & Fire Chief)

Isle of Palms/Sullivans Island/Folly Beach: 1 (Police Chief) One appointee to serve on the Board through cutover to the Consolidated 9-1-1 Center. Following this, these municipalities will appoint a police chief from one of the other two jurisdictions and rotate these appointments every 3 years.

Charleston County Fire Chiefs Association: 2 Representatives selected by the Association. These appointees must not be from one of the jurisdictions listed above. The two fire chiefs appointed by the Chiefs Association, who have served on the Consolidated Dispatch Committee, will serve on the Board through cutover to the Consolidated 9-1-1 Center. Following this, the Chiefs Association will make new fire chief appointments every 3 years.

Non-Voting Member: County Administrator Designee (to serve as Liaison to County Administration and Secretary to the Board).

Non-Voting Member (Advisor): Federal Agency representative selected by majority vote of the Board based upon nomination by the Chair or another Board member.

**6.2 Responsibility and Authority:** The Consolidated Dispatch Board shall have the responsibility to:

A) elect a Chairperson from its members by a majority vote of the Board. The Chairperson will serve a two-year term and may be re-elected for subsequent terms. The Chairperson will have the authority and responsibility:

- a. to preside at regular and special meetings of the Board;
- b. to appoint a member of the Board to act as Chairperson in his/her absence. This appointment may be made on a case-by-case basis or for a designated period of time, not to exceed three consecutive meetings;
- c. to call special meetings as appropriate;
- d. to appoint committees as appropriate;
- e. to represent the Board or appoint another member or the 9-1-1 Center Director to represent the Board at various jurisdictional meetings where consolidated dispatch is on the agenda;
- f. to provide the County Administrator with performance reviews of the Center Director and make written recommendations

regarding his or her performance, utilizing the County Personnel Policies & Procedures, as may be amended from time to time, and with significant input from Board members.

- B) establish, together with the Director, the mission and goals of the Charleston County Consolidated 9-1-1 Center;
- C) work together with the County Administrator to develop an appropriate Director job description and criteria for employment. The Consolidated Dispatch Board will interview qualified applicants and select a candidate (or candidates) for whom a written recommendation will be provided to the County Administrator;
- D) establish operational protocols, policies and procedures for the Consolidated 9-1-1 Center with the assistance of the Director;
- E) consider and resolve questions, issues and disputes presented to the Board by the User Groups or parties to this Agreement;
- F) work with the Director to submit to the County Administrator a recommended budget for the Consolidated 9-1-1 Center by no later than December 15 of each year for the following fiscal year beginning July 1;
- G) provide advocacy for both capital and operational needs of the Center, and work toward funding efficiencies and grant opportunities;
- H) annually adopt a long-range comprehensive plan as described in Section 8, Item J;

6.3 Meetings of the Board:

- A) Any member of the Consolidated Dispatch Board may designate a representative to attend meetings in the member's place. The designee must be from the same jurisdiction and the member will ensure that the designee is knowledgeable and prepared. While so designated, the representative shall assume all rights and responsibilities of a full member. However, members themselves are expected to attend the majority of meetings. If a member misses 3 out of 12 meetings during a calendar year, a letter of concern will be written to the member, with copies to the Governing Body and Administrative Head of the jurisdiction.
- B) Regularly scheduled meetings of the Consolidated Dispatch Board shall be held monthly at such time and place as determined by mutual agreement. Special meetings may be called by the Chairman as appropriate.
- C) A quorum shall be necessary to convene a meeting. Five members shall constitute a quorum. All motions presented for approval shall require majority vote in order to move forward. Additional procedural rules for Board meetings will be established by the Board within the first 90 days of the Board's existence.
- D) The Consolidated Dispatch Board will be a public body subject to the

South Carolina Freedom of Information Act.

**7.0 USER GROUPS:** Two User Groups will be established for the purpose of providing the opportunity for all user agencies to have input into the operations of the Consolidated 9-1-1 Center. There will be a Law Enforcement User Group and a separate Fire/EMS/Rescue/Emergency Management User Group. Membership in each group will include the Chief (or designee) of each agency which utilizes the Consolidated Center for Emergency Communications. These groups will meet at least quarterly and provide written feedback to the Consolidated Dispatch Board regarding any concerns, problems, or recommendations related to operational protocols or any other aspects of the Center's performance to meet their needs.

User Group recommendations relative to service levels, staffing levels, performance standards, operational procedures and protocols or systems shall be made to the Consolidated 9-1-1 Center Director no later than August 15 of each year in order to be considered for implementation in the next budget year.

**8.0 CENTER DIRECTOR:** The Charleston County Consolidated 9-1-1 Center will be managed, operated and supervised by a Center Director, who will be a Charleston County employee subject to the County's personnel policies and other employee regulations. The hire/fire/evaluation of the Center Director shall occur as outlined in Section 6.2.

8.1) Responsibility and Authority of the Center Director:

- A) The Center Director shall be the administrative head of the Charleston County Consolidated 9-1-1 Center and will be responsible for handling administration and personnel matters within the framework of Charleston County regulations and personnel policies.
- B) The Center Director shall be responsible for following operational policies and protocols established by the Consolidated Dispatch Board as outlined in Section 6.2, Item D.
- C) The Director will prepare a proposed budget for Board approval and will assist the Board in submitting to the County Administrator a recommended budget for the Consolidated 9-1-1 Center by no later than December 15 of each year for the following fiscal year beginning July 1.
- D) The Center Director will be responsible for managing the Center within the approved annual budget.
- E) The Center Director will work closely with the County 9-1-1 Coordination staff regarding equipment, training, and other issues for which 9-1-1 funds can be utilized to maintain the best available technology and training to best serve citizens.
- F) The Center Director will be responsible for all activities of the Consolidated 9-1-1 Center, including but not limited to oversight of call-taking, dispatching, records (custodian), recording, staffing, training, and security.

- G) The Center Director shall establish and utilize performance standards for employees. The Director shall actively and continually consider and evaluate all means and opportunities toward the enhancement of operational effectiveness of emergency communications for the benefit of the public and emergency response agencies.
- H) The Center Director shall review and evaluate proposals from User Committees for changes to service levels, performance standards, and/or operational procedures. The Director will prepare a written report on such proposals to include, at a minimum, implementation costs, benefits and liabilities, and will provide a recommendation. Such reports and recommendations will be forwarded to the Consolidated Dispatch Board for review. Final decisions will be made by the Board on all changes in service levels, performance standards and operational procedures, contingent upon available funding for implementation. However, in order to meet the need for procedural changes in a dynamic deployment situation, the Director will be given authority to alter the procedures during critical circumstances.
- I) The Center Director will participate in a non-voting capacity in meetings of the Consolidated Dispatch Board and the User Groups. Should it be necessary for the Center Director to miss a meeting, he/she will have a designee present.
- J) The Center Director will develop appropriate long-range plans, including strategic capital improvements, staffing, technology, and other matters. A comprehensive long-range plan will be developed and updated yearly. This plan will be presented to the Consolidated Dispatch Board on a yearly basis at a date and time determined by the Board. Each year the Board and Director will reach consensus on the plan, and the Board will take action to adopt the plan.

## **9.0 FUNDING:**

**9.1 Capital:** Capital costs will include start-up costs associated with building & equipping 9-1-1 center, to include such things as land acquisition, programming, designing and constructing the facility, computer Aided Dispatch (CAD) for multi-jurisdictional use, dispatch Center furnishings & equipment not funded through 9-1-1 surcharge, in-building circuitry, grounding, HVAC (heating ventilation and air conditioning), electrical, cable pathways, cabling for radio, CAD, 9-1-1 equipment (CPE), local area network (LAN) and future networks, systems networking & connection needs (911 & other phone lines, radio, CAD, NCIC) to the primary PSAP, and the alternate/backup PSAP, with built-in redundancy. (Municipal and/or departmental connections will also be needed in support of email access, department/municipal systems and information access)

Charleston County will provide funding for Capital costs as authorized by Charleston County Council. County Council's Capital Improvement Plan includes \$15 Million for Consolidated Dispatch, subject to final appropriations by County Council.

**9.2 Transitional: Transitional costs will involve staffing and consultant costs before Center becomes fully operational,** to include initial personnel costs to hire the Director and other staff, training and equipping staff, consultant planning services, and training of dispatchers who will be moving from participating jurisdictions to the Consolidated 9-1-1 Center.

**9.3 Transitional costs funded by Charleston County:** The County's projected Transitional costs are estimated at approximately \$1.7 million over three fiscal years, primarily to cover early hiring of high level staff and consultant expenses. These expenses will be borne by Charleston County, subject to budget approval by Charleston County Council. During the six months prior to cutover date, the County will pay dispatcher training/certification fees for those dispatchers at participating centers who are hired or anticipated to be hired by the Consolidated 9-1-1 Center.

**9.4 Transitional costs funded by participating Jurisdictions:** Personnel staff time (including necessary overtime) involved in the initial Consolidated 9-1-1 Center related training of dispatchers who are hired or anticipated to be hired by the Consolidated 9-1-1 Center, will be borne by the participating dispatch agencies where they are employed prior to the cutover date. This will facilitate dispatchers at participating agencies being employed by the Consolidated 9-1-1 Center, while allowing them to remain at their current respective agencies until cutover date.

**9.5 Operational: Operational costs involve costs to operate once Center becomes activated,** including salaries, benefits, support staff, training and employee specific equipment and supplies (uniforms, headsets, etc.), systems maintenance and support costs, facility maintenance, utilities, other indirect costs (factored in projections at 10%), and capital replacement fund to provide future funding toward capital improvement plans such as lifecycle replacement of systems and equipment, NG9-1-1 upgrades and building renovations.

**9.6** Operational costs, projected at approximately \$10.5 million in FY12 (first possible year of Consolidated 9-1-1 Center Operations), increasing annually at a rate of 4% per year as shown on Attachment A, are to be handled through Charleston County taking on all operational costs on an incremental basis, as follows:

**A. First year of Consolidated Dispatch operations (potentially FY-12):** Participating jurisdictions will pay 100% of their "status quo" costs (costs they would otherwise incur for continuing their own dispatch operations). Attachment A includes each jurisdiction's future projected "status quo" costs. For the first operational year of the Consolidated 9-1-1 Center, each jurisdiction will pay Charleston County an amount equal to their status quo costs as shown on this chart (given by fiscal year). **If the first year of consolidated dispatch operations is FY-12, then the jurisdictions will pay the full status quo amount indicated for FY-12.**

**B. Second year of Consolidated Dispatch operations (potentially FY-13):** Participating jurisdictions will pay approximately 50% of their "status quo" costs. Attachment A will be used and each jurisdiction will pay Charleston County an amount equal to 50% of their status quo costs as shown on this chart (given by fiscal year). **If the second year of consolidated dispatch operations is FY-13, the jurisdictions will pay 50% of the full status quo amount indicated for FY-13.**

**C. Third year and beyond:** Charleston County will take on the full costs of Consolidated Dispatch.

**9.7 Operational Funding as it relates to areas outside of Charleston County:** Special financial arrangements will be worked out between Charleston County and those entities which have areas outside of Charleston County which are within their jurisdiction, to ensure that these citizens being served by the center are paying a portion of costs.

**9.8 Existing Funding (funding currently used for 9-1-1 service provision and expected to continue):** Wireline and wireless 9-1-1 surcharges currently fund countywide 9-1-1 equipment, call counting software, networking/connectivity, logging recorders and mapping for the PSAPs. Uses for 9-1-1 funding may expand in the future, per legislative changes. Charleston County will make use of 9-1-1 funds wherever possible.

**9.9 Radio System funding:** The countywide radio system funding structure is not expected to change with the advent of consolidation. The Consolidated Center will be responsible for operational costs associated with connectivity to the County's Radio system and the maintenance costs of radio dispatch consoles.

**9.10 Grant Funding:** Applicable grants will be sought in order to assist in funding Charleston County's Consolidated Dispatch Center.

**9.11 Other Services Funding:** Funding of desired other services, such as municipal administrative call-taking or other non-emergency functions, will be identified by participating jurisdictions early in the planning stage. The participating agency requesting other services will reach a separate agreement with Charleston County related to the compensation for other services, following review and recommendation by the Consolidated Dispatch Board.

**10.0 EQUIPMENT:** Equipment and furnishings for the 9-1-1 Center shall be purchased in the County's name and be the property of Charleston County. The purchase and maintenance of all equipment necessary to receive calls, radio transmissions, and data at the locations (or vehicles) of participating jurisdictions will be the responsibility of the jurisdictions. The parties may engage in cooperative purchasing activities, including but not limited to use of SC State Contracts.

Charleston County and the participating jurisdictions will cooperate together and with local, state and federal agencies in order to maximize interoperability and economies of scale, grant-funding, and other means to reduce costs for equipment and operations. The Center Director, working with the Board, will develop uniform standards for a multi-jurisdictional Computer Aided Dispatch (CAD) system with expandable ports for multiple interfaces such as Records Management System (RMS), Fire Reporting, EMS Reporting and message switching for MDTs or other data-sharing interfaces. Each jurisdiction will be responsible for purchasing and maintaining its own records/data management module and related CAD interface. Access to internal CAD information via the internet may also be an option, and will be funded by each participating jurisdiction. All participating jurisdictions, including those jurisdictions electing not to purchase separate modules and interfaces, will have access to their jurisdiction's call counts and calls for service CAD data upon

request to the Center.

**11.0 DURATION OF AGREEMENT - WITHDRAWAL:** The initial duration of this Agreement shall be for a period of five (5) years from the date hereof, and thereafter shall be automatically extended for consecutive two (2) year periods unless terminated by the parties. In the event that any party desires to withdraw from this Agreement, said party must give 12 months' advance written notice to the other parties, and the withdrawal shall take effect only as of the beginning of the succeeding fiscal year of the County, unless otherwise agreed between the parties. (By way of example and not in limitation, if notice is delivered later than the end of business June 30 of a given year, the Agreement shall continue until the end of the following fiscal year. Notice delivered June 30, 2007, equals withdrawal June 30, 2008. Notice given July 1, 2007, or later, equals withdrawal June 30, 2009.)

**12.0 ADMISSION OF NEW JURISDICTIONS:** Additional jurisdictions may become participants by written addendum to this Agreement, with the approval of the majority of participating governing bodies, upon recommendation by the Consolidated Dispatch Board, with terms and conditions as agreed upon.

**13.0 MEDIATION:** Any controversy between the members with regard to the application or interpretation of this Agreement shall be submitted to the Consolidated Dispatch Board for resolution. If the Board's action does not resolve the controversy, it may be submitted for mediation. Upon failure of mediation, each party reserves all rights and remedies otherwise available under South Carolina law.

**14.0 RESPONSIBILITY FOR LOSS:** Each participating jurisdiction agrees to be responsible and assume the risk of liability for its own wrongful and/or negligent acts or omissions, or those of its officers, agents, or employees to the extent that liability exists.

**15.0 SEVERABILITY:** Should any part of the Agreement be determined by a court of competent jurisdiction to be invalid, illegal or against public policy, said offending section shall be void and of no effect, and shall not render any other section herein, nor this Agreement as a whole, invalid. Those rights and obligations under this Agreement, which by their nature should survive, shall remain in effect after termination, suspension or expiration hereof.

**16.0 EXECUTION:** This Agreement, or amendments hereto, shall be executed on behalf of each participating jurisdiction by its duly authorized representative and pursuant to an appropriate motion, resolution or ordinance of each participating jurisdiction. This Agreement, or any amendment thereto, shall be deemed adopted upon the date of execution by the last so authorized representative.

**17.0 SIGNATURES:** Each party to this Agreement shall sign a signature page to constitute valid execution.

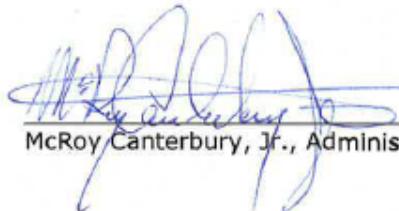
**18.0 ENTIRE AGREEMENT:** This document encompasses the entire Agreement of the members. No understanding or amendment, addendum, or addition to this Agreement shall be effective unless made in writing and signed by all members.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals this  
22<sup>nd</sup> day of January, 2008.

**FOR CHARLESTON COUNTY:**

WITNESSES

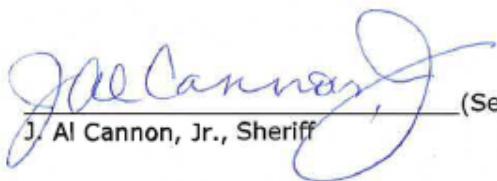
Vincent Sal

  
(Seal)  
McRoy Canterbury, Jr., Administrator

Marie M. Schultz

WITNESSES

Kim D. Sut

  
(Seal)  
J. Al Cannon, Jr., Sheriff

W. Q. Barber

(V12/31/07)

ATTACHMENT A  
 Charleston County Consolidation Study  
 Operational Planning and Transition  
 Cost Summary

Operations Costs - Status Quo - Do Nothing													
	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	Total On-going Operations Costs Fiscal Years 12-19	Total Fiscal Years 09-19
<b>Total All Costs</b>	<b>\$10,059,540</b>	<b>\$10,461,922</b>	<b>\$10,880,399</b>	<b>\$11,315,615</b>	<b>\$11,768,239</b>	<b>\$12,238,969</b>	<b>\$12,728,528</b>	<b>\$13,237,669</b>	<b>\$13,767,176</b>	<b>\$14,317,863</b>	<b>\$14,890,577</b>	<b>\$104,264,635</b>	<b>\$135,666,496</b>
<b>9-1-1 Funded Recurring Costs</b>	<b>\$855,713</b>	<b>\$849,941</b>	<b>\$925,539</b>	<b>\$962,560</b>	<b>\$1,001,063</b>	<b>\$1,041,105</b>	<b>\$1,082,750</b>	<b>\$1,126,060</b>	<b>\$1,171,102</b>	<b>\$1,217,946</b>	<b>\$1,266,664</b>	<b>\$8,869,250</b>	<b>\$11,540,443</b>
<b>City of Charleston</b>	<b>\$1,459,126</b>	<b>\$1,517,493</b>	<b>\$1,578,193</b>	<b>\$1,641,321</b>	<b>\$1,706,973</b>	<b>\$1,775,252</b>	<b>\$1,846,262</b>	<b>\$1,920,113</b>	<b>\$1,996,917</b>	<b>\$2,076,794</b>	<b>\$2,159,866</b>	<b>\$15,123,498</b>	<b>\$19,678,313</b>
<b>Isle of Palms</b>	<b>\$409,564</b>	<b>\$425,947</b>	<b>\$442,985</b>	<b>\$460,704</b>	<b>\$479,132</b>	<b>\$498,297</b>	<b>\$518,228</b>	<b>\$538,955</b>	<b>\$560,517</b>	<b>\$582,937</b>	<b>\$606,255</b>	<b>\$4,245,030</b>	<b>\$5,523,525</b>
<b>Mount Pleasant</b>	<b>\$1,360,531</b>	<b>\$1,435,752</b>	<b>\$1,493,182</b>	<b>\$1,552,909</b>	<b>\$1,615,026</b>	<b>\$1,679,627</b>	<b>\$1,746,812</b>	<b>\$1,816,684</b>	<b>\$1,889,352</b>	<b>\$1,954,926</b>	<b>\$2,043,523</b>	<b>\$14,308,859</b>	<b>\$18,616,323</b>
<b>North Charleston</b>	<b>\$1,243,296</b>	<b>\$1,293,028</b>	<b>\$1,344,749</b>	<b>\$1,398,539</b>	<b>\$1,454,480</b>	<b>\$1,512,660</b>	<b>\$1,573,166</b>	<b>\$1,636,093</b>	<b>\$1,701,536</b>	<b>\$1,769,598</b>	<b>\$1,840,382</b>	<b>\$12,888,453</b>	<b>\$16,767,525</b>
<b>Charleston County Sheriff's Department</b>	<b>\$1,944,045</b>	<b>\$2,021,807</b>	<b>\$2,102,680</b>	<b>\$2,186,787</b>	<b>\$2,274,258</b>	<b>\$2,365,226</b>	<b>\$2,459,838</b>	<b>\$2,558,231</b>	<b>\$2,660,560</b>	<b>\$2,766,983</b>	<b>\$2,877,662</b>	<b>\$20,149,547</b>	<b>\$26,218,079</b>
<b>Charleston County EMS</b>	<b>\$1,867,789</b>	<b>\$1,942,501</b>	<b>\$2,020,201</b>	<b>\$2,101,009</b>	<b>\$2,185,049</b>	<b>\$2,272,451</b>	<b>\$2,363,349</b>	<b>\$2,457,883</b>	<b>\$2,556,198</b>	<b>\$2,658,446</b>	<b>\$2,764,784</b>	<b>\$19,359,160</b>	<b>\$25,189,650</b>
<b>Folly Beach</b>	<b>\$235,859</b>	<b>\$245,293</b>	<b>\$255,105</b>	<b>\$265,309</b>	<b>\$275,921</b>	<b>\$286,958</b>	<b>\$298,436</b>	<b>\$310,374</b>	<b>\$322,789</b>	<b>\$335,700</b>	<b>\$349,128</b>	<b>\$2,095,488</b>	<b>\$2,831,745</b>
<b>James Island</b>	<b>\$205,601</b>	<b>\$213,828</b>	<b>\$222,378</b>	<b>\$231,273</b>	<b>\$240,524</b>	<b>\$250,145</b>	<b>\$260,151</b>	<b>\$270,557</b>	<b>\$281,379</b>	<b>\$292,634</b>	<b>\$304,340</b>	<b>\$2,131,003</b>	<b>\$2,772,807</b>
<b>St. Andrews</b>	<b>\$121,554</b>	<b>\$126,417</b>	<b>\$131,473</b>	<b>\$136,732</b>	<b>\$142,201</b>	<b>\$147,890</b>	<b>\$153,805</b>	<b>\$159,957</b>	<b>\$166,356</b>	<b>\$173,010</b>	<b>\$179,930</b>	<b>\$1,259,881</b>	<b>\$1,639,325</b>
<b>St. John's Island</b>	<b>\$336,460</b>	<b>\$349,919</b>	<b>\$363,915</b>	<b>\$378,472</b>	<b>\$393,611</b>	<b>\$409,355</b>	<b>\$425,730</b>	<b>\$442,759</b>	<b>\$460,469</b>	<b>\$478,888</b>	<b>\$498,043</b>	<b>\$3,487,327</b>	<b>\$4,537,622</b>

Charleston County Consolidation													
Planning & Transition			Operations Costs									Total On-going Operations Costs Fiscal Years 12-19	Total All
	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19		
<b>Consolidated Center Costs</b>	<b>\$135,132</b>	<b>\$236,677</b>	<b>\$596,101</b>	<b>\$10,450,315</b>	<b>\$10,888,328</b>	<b>\$11,303,061</b>	<b>\$11,755,183</b>	<b>\$12,225,390</b>	<b>\$12,714,406</b>	<b>\$13,222,982</b>	<b>\$13,751,902</b>	<b>\$96,291,566</b>	<b>\$139,697,425</b>
<b>9-1-1 Surcharge Funded Costs</b>				<b>\$517,272</b>									
<b>Operational Costs Funded by Participants</b>													
<b>Consulting Assistance</b>	<b>\$155,880</b>	<b>\$220,076</b>	<b>\$225,816</b>										<b>\$861,772</b>
<b>County &amp; Municipal Costs</b>	<b>\$10,059,540</b>	<b>\$10,461,922</b>	<b>\$10,880,399</b>										<b>\$31,461,861</b>
<b>Difference Between "Do Nothing" Operations Costs vs. Consolidation Operations Costs</b>	NA	NA	NA	<b>\$865,300</b>	<b>\$896,912</b>	<b>\$935,906</b>	<b>\$973,345</b>	<b>\$1,012,278</b>	<b>\$1,052,770</b>	<b>\$1,094,880</b>	<b>\$1,138,676</b>	<b>\$7,973,066</b>	<b>-\$4,630,929</b>

**STATE OF SOUTH CAROLINA** )  
**COUNTY OF CHARLESTON** ) ADDENDUM TO INTERGOVERNMENTAL AGREEMENT

**THIS ADDENDUM TO THE INTERGOVERNMENTAL AGREEMENT FOR THE CHARLESTON COUNTY CONSOLIDATED 9-1-1 CENTER** (hereinafter "Addendum") made this 6<sup>th</sup> day of Jan, 2010 2009, by and among the undersigned jurisdictions to include Charleston County, City of Charleston, City of North Charleston, Town of Mt. Pleasant, City of the Isle of Palms, City of Folly Beach, the St. Johns Fire Department, St. Andrews PSD Fire Department and the James Island PSD Fire Department.

**WITNESSETH:**

**WHEREAS**, a feasibility study completed in April 2007 determined that the jurisdictions and residents of Charleston County would benefit greatly from increased interoperability and quicker emergency response by the establishment of a consolidated 9-1-1 center providing services to Charleston County and its jurisdictions and emergency response agencies; and

**WHEREAS**, on January 22, 2008, County Council finalized an intergovernmental agreement with multiple jurisdictional entities which set forth agreement and responsibilities to establish and maintain a consolidated Public Safety Answering Point, to be hereafter known as "Charleston County Consolidated 9-1-1 Center" or "the Center"; and

**WHEREAS**, the intergovernmental agreement for consolidating 9-1-1 services formed the Charleston County Consolidated Dispatch Board, including multi-jurisdictional representation from law enforcement, fire and EMS entities within Charleston County; and

WHEREAS, the City of Charleston has requested to become full participants in the Intergovernmental Agreement for the Charleston County Consolidated 9-1-1 Center.

WHEREAS, the Consolidated Dispatch Board has unanimously recommended approval of the City of Charleston's request to become full participants in the intergovernmental agreement, and

**WHEREAS**, the Parties agree to cooperate and work together for a smooth transition; and

**NOW, THEREFORE**, in consideration of these mutual promises and covenants set forth in this Addendum and the above-referenced recitals, which are incorporated herein by reference, the County hereby acknowledges that the City of Charleston is a full participant in the Intergovernmental Agreement for the Charleston County Consolidated 9-1-1 Center, based on the following terms, conditions, and specifications:

**1.0 PURPOSE:** The purpose of this Addendum is to accept the City of Charleston's request to become full participants in the intergovernmental agreement for the Charleston County Consolidated 9-1-1 Center. This Addendum is based upon Section 12.0 of the intergovernmental agreement, which states that "*Additional jurisdictions may become participants by written addendum to this Agreement, with the approval of the majority of participating governing bodies, upon recommendation by the Consolidated Dispatch Board, with terms and conditions as agreed upon.*"

**2.0 CONSOLIDATED DISPATCH BOARD MEMBERSHIP:** Section 6.1 is hereby revised to expand the Consolidated Dispatch Board to include two additional voting members as follows:

City of Charleston: 2 (Police Chief & Fire Chief)

**3.0 BOARD QUORUM:** Section 6.3 (C) is hereby revised to reflect that **six voting members** shall constitute a quorum.

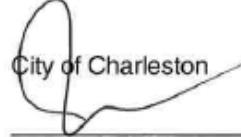
**4.0 REVISION TO ATTACHMENT A:** Attachment A is hereby revised to include the agreed upon estimated costs of the City of Charleston Fire Department dispatch operations for Fiscal Year 2010 and beyond, with revisions as shown on the Revised Attachment A.

This Addendum represents no additional changes to the Intergovernmental Agreement for the Charleston County Consolidated 9-1-1 Center.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals this  
6<sup>th</sup> day of Jan., 2010, 2009

WITNESSES:

Debra Matthews  
Larry J. Moran

  
City of Charleston  
Joseph P. Riley, Jr., Mayor  
(Seal)

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals this  
16<sup>th</sup> day of Dec., 2009.

**FOR CHARLESTON COUNTY:**

WITNESSES

Lori Lambert



(Seal)

Teddie Pryor, County Council Chairman

Marie Schuerz

WITNESSES

Marie Schuerz



(Seal)

J. Al Cannon, Jr., Sheriff

Lori Lambert

(Separate signature pages for the other participating jurisdictions follow)

Addendum to IGA for Consolidated 9-1-1 Center adding City of Charleston, V10-15-09

## REVISED ATTACHMENT A

Charleston County Consolidation Study  
Operational Planning and Transition  
Cost Summary

REVISED ATTACHMENT A AS PROPOSED SEPTEMBER 2009 FOR ADDENDUM ADDING THE CITY OF CHARLESTON AS A PARTICIPANT IN THE INTERGOVERNMENTAL AGREEMENT CHARLESTON COUNTY CONSOLIDATED 911 CENTER

Operations Costs - Status Quo - Do Nothing												Total On-going Operations Costs Fiscal Years 12-19	Total Fiscal Years 09-19
	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19		
<b>Total All Costs</b>	<b>\$10,059,540</b>	<b>\$11,027,218</b>	<b>\$11,468,307</b>	<b>\$11,927,039</b>	<b>\$12,404,121</b>	<b>\$12,900,285</b>	<b>\$13,416,297</b>	<b>\$13,932,949</b>	<b>\$14,511,067</b>	<b>\$15,091,500</b>	<b>\$15,695,170</b>	<b>\$169,898,435</b>	<b>\$142,453,500</b>
9-1-1 Funded Recurring Costs	\$855,713	\$880,941	\$925,539	\$962,560	\$1,001,063	\$1,041,105	\$1,082,750	\$1,126,080	\$1,171,102	\$1,217,945	\$1,265,664	\$8,869,250	\$11,540,443
City of Charleston	\$1,459,128	\$2,082,785	\$2,166,101	\$2,252,748	\$2,342,656	\$2,436,568	\$2,534,031	\$2,635,393	\$2,740,608	\$2,854,641	\$2,964,456	\$20,757,299	\$26,465,317
Isle of Palms	\$409,564	\$425,947	\$442,885	\$460,704	\$479,132	\$498,297	\$518,220	\$538,958	\$560,517	\$582,937	\$606,255	\$4,245,030	\$5,523,525
Mount Pleasant	\$1,380,531	\$1,435,752	\$1,493,182	\$1,552,909	\$1,615,026	\$1,679,627	\$1,746,812	\$1,816,684	\$1,889,352	\$1,964,926	\$2,043,523	\$14,308,859	\$18,618,323
North Charleston	\$1,243,296	\$1,293,028	\$1,344,748	\$1,398,539	\$1,454,480	\$1,512,660	\$1,573,166	\$1,636,093	\$1,701,536	\$1,769,598	\$1,840,582	\$12,886,453	\$16,767,525
Charleston County Sheriff's Office	\$1,944,045	\$2,021,807	\$2,102,680	\$2,186,787	\$2,274,258	\$2,365,228	\$2,459,838	\$2,558,231	\$2,660,560	\$2,766,983	\$2,877,562	\$20,149,547	\$26,218,079
Charleston County EMS	\$1,867,789	\$1,942,501	\$2,020,201	\$2,101,009	\$2,185,049	\$2,272,451	\$2,363,349	\$2,457,883	\$2,556,198	\$2,658,446	\$2,764,784	\$19,359,169	\$25,189,659
Folly Beach	\$235,856	\$245,293	\$256,106	\$265,309	\$275,921	\$286,958	\$298,436	\$310,374	\$322,749	\$335,704	\$349,126	\$2,095,488	\$2,831,745
James Island	\$205,601	\$213,825	\$222,378	\$231,273	\$240,524	\$250,145	\$260,151	\$270,557	\$281,379	\$292,634	\$304,340	\$2,131,003	\$2,772,807
St. Andrews	\$121,554	\$126,417	\$131,473	\$136,732	\$142,201	\$147,890	\$153,506	\$159,557	\$169,356	\$179,016	\$179,930	\$1,258,881	\$1,639,325
St. John's Island	\$336,466	\$349,919	\$363,918	\$378,472	\$393,611	\$409,355	\$425,730	\$442,759	\$460,449	\$478,988	\$498,043	\$3,487,327	\$4,537,822

Charleston County Consolidation			Operations Costs									Total On-going Operations Costs Fiscal Years 12-19	Total All
Planning & Transition			FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19
Consolidated Carrier Costs	\$135,132	\$238,877	\$586,181	\$10,450,315	\$18,868,328	\$11,303,661	\$11,755,183	\$12,225,380	\$12,714,466	\$13,222,682	\$13,751,902	\$96,291,566	\$140,850,529
9-1-1 Surcharge Funded Costs				\$517,272									
Operational Costs Funded by Participants				\$8,933,043									
Consulting Assistance	\$455,884	\$226,676	\$225,616										\$601,773
County & Municipal Costs	\$18,059,540	\$11,027,218	\$11,468,307										\$32,655,065
Difference Between "Do Nothing" Operations Costs vs. Consolidation Operations Costs	NA	NA	NA	\$1,478,734	\$1,535,793	\$1,597,225	\$1,661,114	\$1,727,556	\$1,794,661	\$1,868,527	\$1,943,268	\$13,506,560	\$1,602,873

Note: This revision adds the City of Charleston Fire Department Dispatch Operations Costs, which were not included in the original Attachment A

## APPENDIX B. INTERGOVERNMENTAL AGREEMENT— PORTLAND BUREAU OF EMERGENCY COMMUNICATIONS

ORDINANCE No. **169468**

Orig: Shew  
cc: Bob  
mdu  
File

\* Authorize an Intergovernmental Agreement between the City of Portland, Multnomah County, Cities of Gresham, Troutdale, Fairview, Wood Village, and Maywood Park, Multnomah County Rural Fire Protection District 14 (Corbett), and Sauvie Island Fire District No. 30 for the provision of emergency call receiving and dispatch services by the Bureau of Emergency Communications. (Ordinance)

The City of Portland Ordains:

Section 1: The Council Finds:

1. The Bureau of Emergency Communications (BOEC) is the primary 9-1-1 Public Safety Answering Point for all jurisdictions within Multnomah County.
2. The Bureau of Emergency Communications (BOEC) provides emergency dispatch and related services for all signatories to the Agreement.
3. The language of the October 12, 1989 Agreement required revision due to changes in the Bureau of Emergency Communications operation.
4. The Intergovernmental Agreement attached to this ordinance and marked Exhibit A addresses updated language to the agreement adopted October 12, 1989.
5. This Agreement is authorized pursuant to Chapter 190 of Oregon Revised Statutes and Section 2-105 (a) 4 of the Charter of the City of Portland.

NOW, THEREFORE, the Council directs:

- a. The Commissioner of Public Works and the City Auditor to execute this Intergovernmental Agreement with Multnomah County, the Cities of Gresham, Troutdale, Fairview, Wood Village, and Maywood Park, Multnomah County Rural Fire Protection District 14 (Corbett), and Sauvie Island Fire District No. 30 for the provision of emergency call receiving and dispatch services substantially in the form of the attached Exhibit A.

Section 2. The Council declares that an emergency exists in order to immediately protect and preserve the public health, safety and welfare by insuring the continuity of emergency call receiving and dispatch and related services within the Portland area; therefore, this Ordinance shall be in force and effect from and after its passage by Council.

Passed by the Council, NOV 08 1995

BARBARA CLARK  
Auditor of the City of Portland

By  
*Britton Olson* Deputy

Commissioner Earl Blumenauer  
Sherrill L. Whittemore: mkd  
October 31, 1995

**Bureau of Emergency Communications  
Intergovernmental Agreement**

The City of Portland shall provide for the management, operation, and maintenance of the Center and control such functions on a day-to-day basis. For executive and administrative purposes the Center shall function as a Bureau of the City of Portland.

A User Board, hereinafter referred to as the "Board," consisting of a representative from each User Agency and three Citizens Representatives, has been established to review proposed policy changes and advise the Center Director and/or the Commissioner in charge of the Bureau and the Executive authorities of each Jurisdiction regarding policy changes and other matters which may be under consideration by the Board.

For the purposes of this Agreement, the following will apply:

- (1) Policy is defined as an overall governing plan which affects or impacts the Center's provision of service to its User Agencies;
- (2) Procedures are defined as an established process or course of action on how the Center provides service to its User Agencies. The Center's Standard Operating Procedures (SOPs) define how the Center provides service to its User Agencies.

In consideration of the terms, conditions, and covenants contained herein below, the Jurisdictions hereto agree as follows:

The Jurisdictions and User Agencies have determined that the establishment of a consolidated emergency communications system is in their best interest.

The Center is to be operated as a Consolidated Law Enforcement, Fire and Medical dispatch operation, and the orderly continuation of the Center services is in the mutual best interests of the Jurisdictions and the User Agencies.

The Jurisdictions have agreed that the Center will carry out its service functions to the community without regard to their respective geographical boundaries.

**Bureau of Emergency Communications  
Intergovernmental Agreement**

The City of Portland shall provide for the management, operation, and maintenance of the Center and control such functions on a day-to-day basis. For executive and administrative purposes the Center shall function as a Bureau of the City of Portland.

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In consideration of the terms, conditions, and covenants contained herein below, the Jurisdictions hereto agree as follows:

The Jurisdictions and User Agencies have determined that the establishment of a consolidated emergency communications system is in their best interest.

The Center is to be operated as a Consolidated Law Enforcement, Fire and Medical dispatch operation, and the orderly continuation of the Center services is in the mutual best interests of the Jurisdictions and the User Agencies.

The Jurisdictions have agreed that the Center will carry out its service functions to the community without regard to their respective geographical boundaries.

**Bureau of Emergency Communications  
Intergovernmental Agreement**

**1. Mission Statement**

The mission of the Center is to service the public by providing the vital link between citizens in need with the proper emergency service responder by means of the most efficient operating systems available.

The Center may perform the same or similar services for other government agencies subject to the condition that there is no reduction or change in service levels or increase in cost to the Jurisdictions.

**2. User Board**

The Center is a multi-jurisdictional operation established to provide service to all citizens and emergency response agencies within Multnomah County. The day-to-day management, administration, and fiscal control of the Center is the responsibility of the City.

The Board will be composed of a representative of each of the following:

- (1) Portland Police Bureau, referred to as "Portland Police"
- (2) Portland Bureau of Fire, Rescue and Emergency Services, referred to as "Portland Fire"
- (3) Multnomah County Sheriff's Office, referred to as "M.C.S.O."
- (4) Gresham Police Department, referred to as "Gresham Police"
- (5) Gresham Fire Department, referred to as "Gresham Fire"
- (6) Multnomah County Emergency Medical Services, referred to as "EMS"
- (7) Troutdale Police Department, referred to as "Troutdale Police"
- (8) Fairview Police Department, referred to as "Fairview Police"
- (9) City of Wood Village
- (10) City of Maywood Park
- (11) Fire Protection District 14, referred to as "Corbett"
- (12) Fire District 30, referred to as "Sauvie Island"

**Bureau of Emergency Communications  
Intergovernmental Agreement**

Representatives will be appointed by the administrator of each User Agency. There will also be three Citizens who will sit on the Board: one representing the geographical area west of the Willamette River; one from between the Willamette River and 122nd Avenue; and one from east of 122nd Avenue; the intent being to provide cross-county representation. The Citizen Representatives will be selected jointly by the User Agencies. The Center Director shall provide assistance to the User Board in the nominating and selection of Citizen Representatives.

The Board shall act as a Policy Advisory Board. Decisions by the Board affecting User Agencies' services shall be decided by majority vote. Board decisions shall be forwarded by the Board Chair to the Center Director, as the Board's primary contact. The Board may also communicate directly with the Commissioner-in-Charge of the Bureau of Emergency Communications of the City of Portland.

The authority and responsibility of the Board includes the following:

- (1) To review policies of the Center that affect the User Agencies or the User Agencies' operations.
- (2) To review and make recommendations regarding the Center's annual budget and the User Agencies' charges covering the expenses of the Center as prepared and presented by the Director. The review will include both User Agencies' general funds, and 9-1-1 revenues and the proposed and actual expenditures of these funds.
- (3) To act as the liaison representatives between participating User Agencies.
- (4) To participate in the planning, development, and the implementation of any new communication, computer, or other technical operational system that the User Agencies participate in the funding of, or that has an impact on the User Agencies' operational capabilities.

The Board will adopt the billing methodology for all costs associated with the operation of the Center. The Jurisdictions receiving service from the Center will provide funding for costs associated with

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the delivery of service which is consistent with the executed Performance Agreements (Part 5).

The City of Portland will confer with the Board about the hiring and/or discharge of the Center's Civilian Director, but the City of Portland reserves the right to make the final decision.

**3. The Center**

**(1) General Charge:** 9-1-1 being the primary means of citizens contacting emergency services responders within Multnomah County, the Center is charged with the responsibility of providing prompt, courteous handling of all calls from the public.

The Center being the primary dispatch location for emergency services responders within Multnomah County, the Center is also charged with the responsibility of providing prompt dispatch of all calls requiring response.

The Center, as a recognized first contact by the public who are unable to determine the proper handling of their situation, is further charged with the responsibility of providing prompt, accurate referral of all calls which do not require response by an emergency service responder.

**(2) General Configuration:** The Center is the primary link between the public and emergency services responders for all service response, and, recognizing the critical nature of emergency calls, will operate and maintain both emergency and non-emergency telephone call handling systems. The Center will also perform dispatch of emergency service responders, system status management for EMS, other associated services, and management of the Emergency Communications Center.

**(3) Administrative Responsibility:** Portland shall possess and exercise administrative authority and responsibility to manage and maintain the Center, and nothing in this Agreement shall change title to, ownership of, or access to the Center, any of its equipment, or any other real and personal property.

**(4) General Dispatch:** The Center shall maintain access to the CHORAL System and provide that information to response units.

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When Fire/EMS personnel are dispatched, the Center shall ensure that a certified Fire/EMS dispatcher monitors the assigned radio talk group until incident conclusion, or until advised by units on the scene that monitoring is no longer required. The dispatcher shall continue to communicate with emergency service personnel throughout the incident, providing such information and documented support as may be appropriate.

When a field supervisor requests the exclusive use of a radio talk group and dispatcher that is outside the normal scope of operations, if practical, a dispatcher and radio talk group will be provided. The ability to make this assignment will be weighed against the call volumes at the time. Costs for such operations will be billed directly to the requesting User Agency.

**(5) Operational Center Staffing:** The Center shall provide adequate supervision, training, and operating procedures to ensure that those employees assigned to process calls are prepared to meet the specific needs of User Agencies.

Only certified Call Takers and Dispatchers will be assigned to independently process E9-1-1 calls. The Center shall assure certification compliance of personnel as specified by local, state, and federal standards.

**(6) Monthly Reports:** a) During the period of this Agreement, the Center shall submit monthly management reports to User Agencies in accordance with a mutually agreed-upon format; b) The Center shall send reports on all citizen requests for service, the action taken, and the ultimate disposition of requests for service, to each User Agency.

**(7) Computer Aided Dispatch (CAD) Data:** All CAD and Mobil Digital Terminal (MDT) magnetically recorded data shall be retained for a period of at least twelve (12) months. Audio tapes shall be retained for at least seven (7) months by the Center. Any additional costs incurred by the Center in

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the storage of CAD and MDT magnetically recorded data and audio tapes beyond the agreed-upon time shall be paid by the requesting User Agency.

(8) **Special Reports:** Special requests for reports not generally produced as part of the monthly report package shall be honored only when authorized by the User Agency's representative to the Center. Such requests shall be billed to the requesting User Agency based on prevailing rates, and shall not require the use of unbudgeted resources.

(9) **Document Retrieval/Voice Tape Research:** All requests for research or reproduction of CAD printouts or voice tapes will be billed to the requesting User Agency at the established rate. There is no charge for research associated with the processing of a complaint.

(10) **Service Complaints:** Complaints received by the Center from citizens concerning User Agency performance will be referred directly to the User Agency. Complaints from citizens about Center services received by User Agencies will be referred directly to the Center Director.

(11) **System Integrity:** Maintenance which interferes with the operation of the primary system shall not be permitted unless a back-up system is in place that provides basic service to citizens and field units. The Center shall *immediately* notify the User Agencies of any major system failures or maintenance which affect service to the User Agencies.

(12) **Back-up Dispatching System:** The Center will maintain and ensure the accuracy of a back-up system capable of providing basic service to citizens and field units. All certified dispatchers must be proficient in the use of the back-up system. The Center shall conduct regularly scheduled drills to ensure competence.

(13) **Charges for Services:** a) Charges for communication services (call taking and dispatch) delivered by the Center to User Agencies shall be based on the agreed-upon billing methodology;

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b) Whenever User Agencies are added or deleted from the communications service system, the billing methodology will be revised to reflect services provided to the additional, or remaining, Agencies.

**4. Emergency Operations**

Participating Jurisdictions shall have access to the Center to direct such emergency operations as circumstances may require.

**5. Performance Agreements**

The City shall negotiate separate Performance Agreement(s) with each User Agency describing and defining the standards of performance of various types of telephone call processing services (E9-1-1, non-emergency and dispatch services) and other service expectations to be provided by the Center to the Jurisdictions and their User Agencies.

**6. Center Personnel**

The day-to-day administration of the Center will be the responsibility of the Director. All Center personnel will be civilian employees of the City. The Jurisdictions agree that the Director of the Center shall possess and exercise administrative and management authority over all Center personnel.

**7. Liaison**

The Board may consent to the assignment of Liaison personnel to the Center. Liaison personnel will not be considered Center employees. Liaison personnel will have no supervisory authority or responsibility when assigned to the Center. Supervision, management and administrative support for Liaison personnel will be the responsibility of the User Agency making the assignment.

**8. Budget**

The Center's budget will include the total costs of the Center's operation. The Board will review the Center budget and any modification of that budget. The Jurisdictions will provide resources sufficient to fund the budget. The Jurisdictions reserve the right to participate in the Center's budget process. Prior

**Bureau of Emergency Communications  
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to submission for City budget review, the Jurisdictions and User Agencies shall receive copies of all documents relating to the Center's budget in sufficient time to review and comment upon said documents.

The Jurisdictions will pay their agreed-upon proportionate share of the expenses of operating the Center as noted in the Performance Agreement(s) referred to in Part 5, then in effect between the parties. The Performance Agreements shall stipulate in the billing methodology the formula to be used to determine costs to each User Agency.

The Center will recover costs for research, tape requests, special report generation services and other special services which are not part of the call taking and dispatch function. Costs of all User Agency requests for such items will be billed directly to the User Agency making the request.

**9. Confidentiality**

All information received, originated, and/or processed by the Center is confidential. The Center Director is custodian of all records created and/or maintained by the Center in accordance with ORS 192.410 to 192.505. This information includes:

- a) User Agency communications (voice, written, and/or fax);
- b) Computer Aided Dispatch (CAD) information;
- c) Mobile Digital Terminal (MDT) information;
- d) Law Enforcement Data System (LEDS) information;
- e) ANI/ALI information;
- f) Voice tapes;
- g) Center reports;

This information cannot be released to or accessed by any person or agency outside the Center or User Agencies without due notification of and authorization from User Agencies or by Court Order. When the Center receives a request for information that the User Agency considers to be confidential, the User Agency shall, at its expense, defend the confidentiality of the information.

The confidentiality and privacy of Center records and tapes shall be maintained and protected consistent with relevant laws and regulations. Once User Agency information is delivered to or accessed

**Bureau of Emergency Communications  
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by a User Agency, all responsibility for maintaining the confidentiality of and safeguarding the information resides with the User Agency.

Each User Agency will have access to the Center-generated files, reports and records for their respective User Agency and for each of the other User Agencies' files, reports and records.

**10. Property Settlement Upon Termination**

All Center facilities and equipment have been provided by the City of Portland. The City of Portland shall retain all Center facilities and equipment upon termination of the agreement or withdrawal.

**11. Liability**

The City of Portland shall defend, indemnify and hold harmless the Jurisdictions and User Agencies from any and all liability, loss, or damage resulting from claims, demands, costs, or judgments against the Jurisdictions and User Agencies due to any Center activity not undertaken at the direction of a Jurisdiction or User Agency or its officers, employees or agents, consistent with ORS 30.260 *et seq.* Each Jurisdiction and User Agency agrees to promptly notify the Center and the City's Office of Finance and Administration, Risk Management Division, of any claims or demands made against any Jurisdiction or User Agency as a result of any alleged activity.

**12. Limitations**

Nothing contained in this Agreement shall be construed as a grant of any legislative authority by the Jurisdictions or User Agencies to any party or to the Center.

**13. Construction**

This Agreement shall be liberally construed to effect the purposes expressed herein.

**14. Termination of Previous Agreements**

All rights and responsibilities concerning the Center are now incorporated into this Agreement and the Jurisdictions agree that all previous agreements relating to the Center are terminated.

**15. Term, Modification and Review of Contract**

- a) This contract may only be terminated by mutual consent of all the Jurisdictions.

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b) Any Jurisdiction may cease to participate in this Agreement through procedures outlined in ORS Chapter 401 and by providing all other parties with written notice at least six (6) months prior to July first of the year in which the party wishes to cease participating.

c) Any Jurisdiction wishing to amend the Agreement shall notify each of the other Jurisdictions by providing a statement of issues and provisions which the notifying party wishes to modify and a date for the initiating of negotiation not sooner than 30 days nor later than 90 days after the date of notification.

**16. Non-assignment**

No Jurisdiction may assign any right or responsibility without the written consent of the other Jurisdictions.

**Bureau of Emergency Communications  
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**17. Notices**

All notices pursuant to the terms of this Agreement shall be addressed as follows:

Notices to City	1. Commissioner in Charge 1220 SW Fifth Avenue Portland, Oregon 97204
	2. Chief, Portland Police Bureau 1111 SW Second Avenue Portland, Oregon 97204
	3. Chief, Portland Bureau of Fire, Rescue and Emergency Services 55 SW Ash Street Portland, Oregon 97204
Notices to County	1. County Chair Room 134, Multnomah County Courthouse 1021 SW Fourth Avenue Portland, Oregon 97204
	2. Sheriff, Multnomah County Hansen Building 12240 NE Glisan Portland, Oregon 97204
	3. Director, Emergency Medical Services 426 SW Stark, Ninth Floor Portland, Oregon 97204
Notices to City of Gresham	Gresham City Manager 1333 NW Eastman Parkway Gresham, Oregon 97030
Notices to City of Troutdale	Troutdale City Administrator 104 SE Kibling Troutdale, Oregon 97060
Notices to City of Fairview	Fairview City Administrator P.O. Box 337 Fairview, Oregon 97024

**Bureau of Emergency Communications  
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Notices to City of Wood Village

Wood Village City Administrator  
2055 NE 238th Avenue  
Wood Village, Oregon 97060-1095

Notices to City of Maywood Park

Mayor, Maywood Park  
4510 NE 102nd Avenue, Annex 1  
Maywood Park, Oregon 97220

Notices to Fire District 14

Chief  
Multnomah County Rural Fire  
Protection District 14  
P.O. Box 1  
Corbett, Oregon 97019-0001

Notices to Fire District 30

Chief  
Sauvie Island Fire District 30  
17236 NW Lucy Reeder Rd.  
Portland, OR 97231

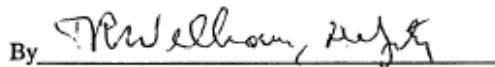
Bureau of Emergency Communications  
Intergovernmental Agreement

IN WITNESS WHEREOF, the Jurisdictions have legally approved and executed this Agreement on the dates noted below.

CITY OF PORTLAND, OREGON

By   
Earl Blumenauer, Commissioner

APPROVED AS TO FORM:

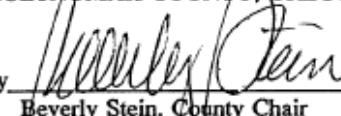
By   
Jeffrey L. Rogers, City Attorney  
(10/20/95)

Date: \_\_\_\_\_

By   
Barbara Clark, City Auditor

Date: \_\_\_\_\_

MULTNOMAH COUNTY, OREGON

By   
Beverly Stein, County Chair

Date: \_\_\_\_\_

By   
Dan Noelle, Sheriff

Date: 10-1-95

REVIEWED:

By   
Laurence Kressel, County Counsel  
Date: Oct. 9, 1995

Bureau of Emergency Communications  
Intergovernmental Agreement

CITY OF GRESHAM, OREGON

APPROVED AS TO FORM:

By Thomas Sponsler  
Tom Sponsler, City Attorney

By Gussie McRobert  
Gussie McRobert, Mayor

Date: 10/5/95

By Bonnie Kraft  
Bonnie Kraft, City Manager

Date: 10/4/95

CITY OF TROUTDALE, OREGON

APPROVED AS TO FORM:

By N.A.  
Shane Reeder, City Attorney

By Paul Thalhofer  
Paul Thalhofer, Mayor

Date: 9/21/95

By Erik Kvarsten  
Erik Kvarsten, City Administrator

Date: 9/17/95

CITY OF FAIRVIEW, OREGON

APPROVED AS TO FORM:

By N/A  
William L. Brunner, City Attorney

By Roger Vonderharr  
Roger Vonderharr, Mayor

Date: 9-6-95

By Marilyn Holstrom  
Marilyn Holstrom, City Administrator

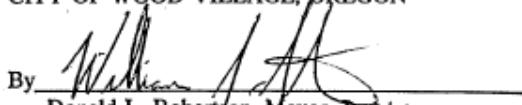
Date: 9-7-95

Bureau of Emergency Communications  
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APPROVED AS TO FORM:

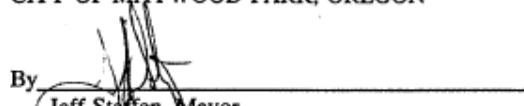
By   
William L. Brunner, City Attorney

CITY OF WOOD VILLAGE, OREGON

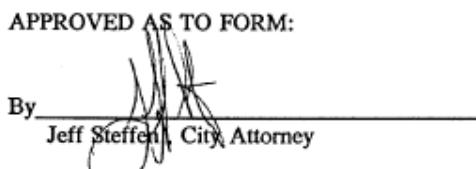
By   
Donald L. Robertson, Mayor  
William J. Stewart  
Date: 9/13/95

By   
Sheila M. Ritz, City Administrator  
Date: 9/13/95

CITY OF MAYWOOD PARK, OREGON

By   
Jeff Steffen, Mayor  
Date: 9/6/95

APPROVED AS TO FORM:

By   
Jeff Steffen, City Attorney

FIRE DISTRICT NO. 14

By   
James Rhodes  
Chairman, Board of Directors  
Date: 10/19/95

FIRE DISTRICT NO. 30

By   
Don Anderson  
Chairman, Board of Directors  
Date: 9/12/95

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Bureau of Emergency Communications  
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**MEMORANDUM OF UNDERSTANDING  
TO SUPPLEMENT THE BUREAU OF EMERGENCY COMMUNICATIONS  
INTERGOVERNMENTAL AGREEMENT REVISED AUGUST 24, 1995, TO  
PROVIDE FOR ADDITIONAL OVERSIGHT**

**Recitals**

1. This Memorandum of Understanding ("Memorandum") is signed by officials who are associated with parties to the Bureau of Emergency Communications Intergovernmental Agreement ("IGA") last revised on 8/24/95 (see attachment).
2. This Memorandum shall not amend or supercede said Intergovernmental Agreement but shall outline a mechanism for additional oversight as agreed to by officials who participate in BOEC matters for their respective jurisdictions.
3. This Memorandum is not a binding contract or intergovernmental agreement, and does not impose any enforceable obligations or liabilities on any person or governmental unit. As a non-binding statement reflecting the intentions of the signatories, it is not anticipated or required that this Memorandum will receive formal adoption by the jurisdictions participating in the IGA.

**Understanding Regarding Additional Oversight**

- I. A BOEC Advisory Board to the City of Portland Commissioner In Charge is hereby established, as a voluntary and supplemental opportunity to provide BOEC oversight.

**Membership:**

The BOEC Advisory Board shall consist of the governing official for each user jurisdiction: Mayor of Gresham, Mayor of Fairview, Mayor of Wood Village, Mayor of Maywood Park, Mayor of Troutdale, Sheriff of Multnomah County, Commissioner In Charge for Multnomah County, Portland Chief of Police, Portland Fire Chief, Fire Protection District 14, Fire District 30.

**Responsibilities:**

- A. Represent their respective jurisdictions on issues forwarded by the User Board.
- B. Review and comment on the annual budget as submitted by the BOEC Director.
- C. Participate in the selection of the BOEC Director.

II. A BOEC Finance Committee shall be established, to provide voluntary and supplemental oversight on BOEC finances.

Membership:

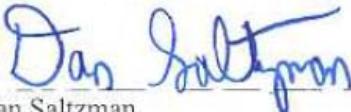
The Finance Committee will consist of one finance/budget staff from each user jurisdiction and a finance staff person from BOEC.

Responsibilities:

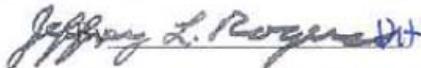
- A. Review, on a quarterly basis, the BOEC budget.
- B. Participate in the development of the annual budget and submit that budget to the BOEC Advisory Committee for approval and submission to the City of Portland.

IN WITNESS WHEREOF, the officials listed below have executed this Memorandum on the dates noted below.

CITY OF PORTLAND, OREGON

By   
Dan Saltzman  
Commissioner of Public Affairs

APPROVED AS TO FORM:  
APPROVED AS TO FORM

  
CITY ATTORNEY

Date: 3/8/01

By   
Gary Blackmer  
City Auditor

Date: 3/8/01

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BUREAU OF EMERGENCY COMMUNICATIONS INTERGOVERNMENTAL  
AGREEMENT REVISED AUGUST 24, 1995, TO PROVIDE FOR ADDITIONAL  
OVERSIGHT

MULTNOMAH COUNTY, OREGON

REVIEWED:

By

Beverly Stein  
County Chair

Date:

By Thomas Sponsler  
Thomas Sponsler  
County Attorney's Office

By

Dan Noelle  
Sheriff

Date: 11/17/01

CITY OF GRESHAM, OREGON

By

Charles J. Becker  
Charles J. Becker  
Mayor

Date: 7 March 2001

APPROVED AS TO FORM:

By Susan G. Bischoff  
Susan G. Bischoff  
City Attorney

By

Bonnie Kraft  
Bonnie Kraft  
City Manager

Date: 7 March 2001

CITY OF TROUTDALE, OREGON

By Paul Thalhofer  
Paul Thalhofer  
Mayor

APPROVED AS TO FORM:

By N/A  
Timothy J. Sercombe  
City Attorney

Date: Jan. 24, 2001

By Erik Kvarsten  
Erik Kvarsten  
City Administrator

Date: January 24, 2001

CITY OF FAIRVIEW, OREGON

By Roger Vonderharr  
Roger Vonderharr  
Mayor

Date: 3-5-01

APPROVED AS TO FORM:

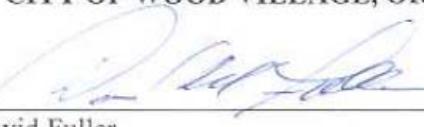
By NA  
Berry & Elsner, LLP  
City Attorneys

By Marilyn Holstrom  
Marilyn Holstrom  
City Administrator

Date: 3-5-01

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BUREAU OF EMERGENCY COMMUNICATIONS INTERGOVERNMENTAL  
AGREEMENT REVISED AUGUST 24, 1995, TO PROVIDE FOR ADDITIONAL  
OVERSIGHT

CITY OF WOOD VILLAGE, OREGON

By   
David Fuller  
Mayor

APPROVED AS TO FORM:

By N/A  
Jeff Condit  
City Attorney

Date: 2/26/01

By   
Sheila Ritz  
City Administrator

Date: 2/26/01

CITY OF MAYWOOD PARK, OREGON

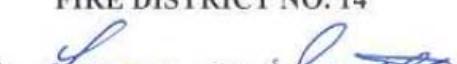
By   
Mark Hardie  
Mayor

APPROVED AS TO FORM:

By N/A  
Jeff Steffen  
City Attorney

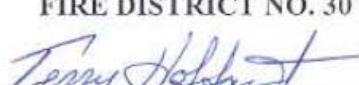
Date: 2-5-01

FIRE DISTRICT NO. 14

By   
Leroy Smith  
Chairman, Board of Directors

Date: Jan 26, 2001

FIRE DISTRICT NO. 30

By   
Terry Hoffart  
Chairman, Board of Directors

Date: Feb 6, 2001

## LIST OF REFERENCES

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